TOP SECRET

Interagency Team on
Mobilization and Reinforcement
of the
Verification Panel Working Group for
MUTUAL AND BALANCED FORCE REDUCTION

WARSAW PACT MOBILIZATION AND REINFORCEMENT

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The Report in Brief

1. The Objective

This report is an interagency assessment of the organization, operation, and size of a Soviet and East European mobilization and reinforcement in anticipation of imminent hostilities against the Central Region of NATO. The work underlying this report has concerned itself primarily with the mobilization and movement of forces from the USSR (Baltic, Carpathian, and Belorussian military districts). The report was prepared in accordance with the directions and guidance of the Verification Panel Working Group for MBFR and the Staff of the National Security Council.

2. Mobilization

From an examination of all available intelligence on the mobilization requirements, procedures, and potential capabilities of the USSR and of the East European nations, we conclude that there are no serious obstacles to the rapid peacetime mobilization of the force with which the USSR would seek to reinforce against the NATO Central Region.

The Findings:

There is good evidence that the Warsaw Pact would seek to create a five-front force of some 1.3 million men for a campaign in Central Europe. The five fronts would contain 20 field armies, 83 divisions, and five tactical air armies. To build this force, some seven Soviet field armies containing 25 divisions plus three Soviet tactical air armies would be brought from the USSR.

This reinforcing Soviet force could be filled out in one to two days with some 200,000 men and 50,000 major items of equipment.

Five Soviet armies, 27 divisions, and a tactical air army already forward would be immediately deployed.

Eight East German, Polish, and Czechoslovak field armies containing most of some 31 divisions would be moved forward or deployed after the mobilization of some 121,000 men and 33,000 major items of equipment. Of the 31 East European divisions 23 are expected to be ready by M + 1, the remainder by M + 14.

3. Movement

The bulk of the movement would be accomplished by rail using the most direct high-capacity routes. Calculations also used some of the road and air transport capacity available to Pact forces.

The Findings:

A total of 34 Warsaw Pact ground force divisions in East Germany, Poland, and Czechoslovakia could be available for commitment against the NATO Central Region on M day; 20 of these divisions could be in the Central Front on the Pact's main axes of advance, 4 could be ready in the Northern Front, 7 in the Southern Front, and 3 in the Special Operations Group. These forces represent the standing forward units, which require only short moves from their permanent peacetime garrisons to their assigned wartime sectors of operation.

By M + 5, an additional 20 Warsaw Pact ground force divisions from Eastern Europe could be available, bringing the total of combat divisions in the forward area to 54.

By M + 9, 60 percent of the reinforcing divisions and over 90 percent of the forward area divisions would have closed.

By M + 11, 90 percent of all divisions (75) would be closed, with only the four reserve divisions for the Northern and Southern fronts and four reinforcing divisions not in position.

By M + 20, all 25 of the divisions from the Baltic, Belorussian, and Carpathian military districts, along with all army and front headquarters and support units,

would be in the forward area. At that point, a force of 83 Warsaw Pact combat divisions would be organized in five fronts and ready for commitment against the NATO Central Region.

4. Evaluation of Combat Readiness

It is estimated that roughly two-thirds of the divisions expected to be rapidly deployed forward from the western USSR would arrive "substantially ready" to perform their mission, with only minor deficiencies. The remaining third would probably be "marginally ready" for their designed mission. They may have major deficiencies but nevertheless would be capable of at least limited operations for limited periods.

The evaluation criteria were derived from the data examined for this study and do not purport to equal the more detailed US criteria. Only the definitions of unit readiness have been borrowed from US Army terminology.

This method of making a rough qualitative evaluation of the post-mobilization status of reinforcing Pact units was not accepted by all of the participating agency representatives, some of whom felt generally that the shortage of data on Pact forces makes any attempt at such post-mobilization evaluation inherently invalid, particularly if the concluding judgments imply a comparison with US forces.

5. Collateral Constraints

Most of the collateral constraints which were considered appeared blatantly intrusive or nonnegotiable--for example, a limitation on the amount of transport capacity that the Soviets would be permitted to maintain in the western USSR. Negotiability aside, however, computations made for this report suggest that even if these collateral constraints could be applied they would be of little effect against a system as large and complex as that required for Soviet mobilization and movement.

6. General

In general, the short time alloted for the production of a study of this magnitude necessitated adherence to a strict regimen of data collection, compilation, analysis, and report preparation. Minimum time was available for new research, review, and reevaluation. The final report, nevertheless, consists of conclusions believed to be reasonable drawn from the base of available data. The intelligence process is dynamic, and it is anticipated that the conclusions of this study could be adjusted or revised with the introduction of new intelligence.

It is doubtful, however, that any new information related to the tangible aspects of mobilization and reinforcement--notably the availability of reservists and civilian trucks and the capacity of the transport system--will have any more than marginal impact on the major judgments in this study. The notable areas of uncertainty lie in the intangibles--for example, the efficiency of the mobilization mechanism, the quality of training received by reservists, the state of the records and plans of the controlling offices, and the behavior of the system and personnel in a crisis situation.

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Warsaw Pact Mobilization and Reinforcement

Introduction

This report presents an interagency assessment of the organization, operation, and size of the mobilization and reinforcement which might be undertaken by the Warsaw Pact in anticipation of imminent hostilities against the Central Region of Europe.

Study Limitations

The central concern governing this study is the question of the speed and efficiency with which the Soviet Union could mobilize at least a two-front force in the western USSR, move it through Poland and into Czechoslovakia and East Germany, and position it to engage the Central Region of NATO. For this reason, the study concerns itself primarily with the mobilization of forces in the USSR (Baltic, Belorussian, and Carpathian military districts), Czechoslovakia, Poland, and East Germany and the positioning of a five-front force opposite NATO prior to hostilities.

Data Limitations

The data used in this study represent a wide range in terms of completeness and confidence

Note: This report was prepared by the Warsaw Pact Mobilization and Reinforcement Team in accordance with directives of the Verification Panel Working Group for MFBR (Mutual and Balanced Force Reduction) and the Staff of the National Security Council.

levels. The best and most recent information available was used but, although much new analysis was performed, the time available for completion of this study did not permit substantial additional research. There is general agreement within the study group as to the validity assigned to the data and methodologies used in the analysis, and as to the major findings and conclusions.

However, there are differences between the CIA and DIA estimates of the peacetime status of the forces under consideration. These differences, which are chiefly on the peacetime manning and equipment levels of ground forces, would have significant bearing on the quality of Warsaw Pact forces after mobilization but do not affect the judgments of this study on mobilization and reinforcement capabilities. For a description and explanation of the differences between CIA and DIA estimates, see the Appendix.

Following is a summary description of the sources of the data used in this study, validity of the data, and significant intelligence gaps.

Requirements

much of the required support force--especially rear services--has been derived from

more fragmentary and less specific information, and inferred from examination of general Soviet concepts and theories on logistic support operations. It is believed to be adequate as an expression of the support force which the Soviets would organize initially in a situation highly likely to develop into nuclear war, but there is substantial uncertainty as to Warsaw Pact support requirements for prolonged conventional war.

Current Status of Forces

The numbers and locations of divisions, tactical air units, and most combat support units are known with a high level of confidence. The tables of organization and equipment (TOEs) for such units are estimates derived from analysis of prototype units which are especially accessible to observation and which are believed to be most nearly combat ready. Other, nominally similar, units are then assessed by comparison with the prototypes. Actual organization, major weapons counts, and approximate overall equipment levels are assessed from photography. Manpower levels are inferred, with less confidence, from analysis of equipment levels and other indicators observable in satellite photography, and from fragmentary human source and documentary evidence.

Other units, which present few photographic indicators and on which less human source and documentary evidence is available, are identified with less confidence and manning levels have not been assessed for specific units but rather have been estimated for the whole class.

Mobilization Capabilities

General Warsaw Pact procedures for mobilization are known, and Pact plans and capabilities for

assembling reservists and civilian vehicles are presented with confidence. Data on mobilization of rear services units are more theoretical. There is little direct evidence on actual performance of such mobilization. However, classified Soviet writings in the early Sixties suggest that under extreme emergency conditions--assuming a NATO attack--the Soviets would expect to be able to commit armies moved forward from the western USSR within about 10 to 12 days. Their performance during the Czechoslovak intervention, when the timing of events was largely under their control, suggests that the Soviets would prefer to take about three weeks to prepare for an offensive.

Logistical Data

Estimates of Warsaw Pact logistical requirements are based on good evidence of Soviet planning for nuclear combat. Classified Soviet writings in the early Sixties provided general theoretical information on overall supply levels considered necessary for war in Europe The estimates of actual stock levels used in this study are based on calculated capacities of identified supply depots. The stock levels calculated for Soviet forces in East Germany and the western USSR probably are adequate for the purposes of this study. Less information is available on the logistical stocks of the East European countries than is available on the USSR, and the level at which these countries have stockpiled supplies is uncertain. There is little evidence to indicate how Pact logistical planning factors would be modified for conventional war.

Movement Capabilities

The data on rail and highway capacities are current and are considered sufficiently accurate

for the purpose of this study. The assumptions as to their operation in a reinforcement are compatible with their capacities and known operating procedures. There is no evidence on the degree to which problems in an actual movement would degrade the capabilities assumed here.

Basic Assumptions

To keep the scope of this study within manageable limits the following assumptions are made:

-- Mobilization and reinforcement are accomplished prior to the initiation of hostilities.

-- Mobilization and reinforcement are planned to be accomplished at maximum speed and all facilities are employed at maximum reasonable capacity, considering where possible the likely effects of unpredictables such as weather, equipment, administrative and human reliability, and availability.

-- No time is set aside in Soviet or Pact mobilization planning or movement schedules for the training of mobilized units prior to arrival in their most forward position.

-- No Soviet or Pact efforts will be made to conceal the fact or the extent of mobilization or reinforcement beyond normal procedures required for military security.

-- Soviet units constituting the Group of Soviet Forces in Germany are essentially combat ready. Selected units of this group of forces provide the quantitative standard against which other Soviet units are measured.

-- For movement calculations, nondivisional units regardless of size may be moved forward as soon as they are at full strength.

Divisions may begin forward movement only when all component divisional regiments and organic support units are complete.

Definition of Terms

Following are definitions of some of the terms used in this study. Other terms are defined as necessary in the text.

Mobilization requirements: That quantity of men, equipment, logistic stocks, or external support which a unit, facility, or other element must acquire to reach full strength.

Full strength: The manning, equipment and stock level of the closest "model" prototype unit in the GSFG (Group of Soviet Forces in Germany).

Identified and estimated resources: Those resources (equipment, manpower, logistic stocks, facilities, etc.) which are known, estimated, or presumed to be available to satisfy the mobilization requirement of any force element, service, or facility.

Assembly requirement: Those military and civil organizations, facilities, transportation, and resources necessary to accomplish the formation and integrity of units being mobilized. (Not to be confused with marshalling requirements.)

Marshalling and staging requirement: Those military and civil organizations, facilities, transportation, and resources required to marshal transportation and prepare large units for their movement to the area of forward deployment.

Annex

An Annex to this report is planned for distribution under separate cover. It is to include maps and detailed tabular data used in the production of the mobilization and movement estimates.

Ground Forces

Mobilization

This study is concerned with the mobilization of ground forces in the USSR (Baltic, Belorussian, and Carpathian military districts), Czechoslovakia, Poland, and East Germany. The mobilization requirement is that quantity of manpower, equipment, logistic stocks, or external support which a unit, facility, or other element must have to reach full strength. The quantities of manpower and equipment needed to reach full strength are to be included in the proposed separate Annex to this report by country, by military district, and by major force element where applicable.

Manpower Requirements

The Soviet and East European forces under consideration would, at full strength, total some 1.3 million men. Of these, at least 25 percent would have to be mobilized to bring all units up to full strength. Soviet forces in Eastern Europe are at the highest level of manning while some units of the Czechoslovak, Polish, and East German forces, and most Soviet forces in the Baltic, Belorussian, and Carpathian MDs require augmentation.

The following discussion of manpower and other mobilization requirements treats the two-front reinforcing force in greater detail than the other forces since the primary concern of this study is the speed and efficiency with which the Soviet Union could mobilize this force and move it through Poland and Czechoslovakia and position it to engage the Central Region of NATO.

Quantity, Specialty, Quality

The two reinforcing fronts which would move from the three western USSR military districts--Baltic, Belorussian, and Carpathian--into Poland, East Germany, and Czechoslovakia consist of support and service elements of the fronts and of seven component

armies, which include 25 divisions (14 tank and 11 motorized rifle divisions). The total wartime strength of this two-front force has been estimated at more than 400,000 men.

The total number of personnel now available in the force is, according to the CIA estimate, about 182,000 men. The DIA estimate is 239,800 men. The difference is discussed in the Appendix.

These estimates are based on extensive analysis of satellite photography, classified Soviet writings and documents, and a small, but credible, amount of human testimony which indicates that there is a relationship between equipment and personnel levels. The CIA and DIA estimates agree on the point that all but one of the 14 tank divisions in the reinforcing fronts have at least one-half of their authorized personnel. Both estimates hold that tank divisions are generally at a higher level of manning than motorized rifle divisions.

There are a number of other units which would be at a relatively high level of manning because of their mission and their need for readily available and highly trained personnel to maintain and operate complex and highly specialized equipment. These units include combat and combat support units at the army and front levels such as SS-1 Scud tactical missile, surface-to-air missile (SAM), signal, radio relay, radio and radar intercept, and early warning units. No estimate can be made from available information, however, of the number of personnel in the various military skills available and required for mobilization. Personnel needed for units requiring specialized skills will probably have a higher average age and have less recent military experience than those required to flesh out combat units.

Rear service units probably are generally at the lowest level of manning and in some instances (particularly at the front level) entire units might have to be mobilized. However, some rear service units may have more personnel than currently estimated.

Total Requirement and Resources

The total manpower augmentation requirement for the three military districts amounts to approximately 200,000. This requirement is well within the estimate of the number of reserves available. In the Soviet Union, the number of reservists who have completed their military training within the past five years is approximately 2 million. Information is not available on the geographic distribution of these men, but it probably corresponds to the patterns of normal population distribution.

Statements indicate that reservists assigned to their units trained every three to five years. However, a Soviet said that reservists never trained with his regiment in the five years he was assigned to it. He also said that reservists mobilized for the Czech crisis made up about half the regiment's strength and ranged in age up to 42. They had had no military training since their discharge from conscript service--as much as 21 years previously. They were given no special training after mobilization. However, the motorized rifle battalions of the regiment were reorganized several times in an attempt to incorporate the mobilized reservists most effectively.

The Carpathian, Belorussian, and Baltic military districts are located in the most densely populated area of the USSR. This area, comprising only 2 percent of the country's land area, contains almost 27 million people or some 11 percent of the total population. (See Table 1, page 10.) The exact demographic characteristics of the population will not be known until age-sex data from the 1970 Soviet census are published, but there are factors which might bear on the mobilization potential in the area. For example, the population is growing at a relatively slow rate--about half the national average--suggesting an older than normal population distribution.

Table 1

Distribution of Population in the
Western USSR Military Districts

Military District	Region or Oblast	Population (thousands)* 1959	1970	1970-Urban
Belorussian	Brest	1,200	1,300	450
	Vitebsk	1,250	1,370	620
	Gomel'	1,360	1,530	620
	Grodno	1,080	1,120	370
	Minsk	1,530	1,540	410
	Minsk City	510	920	920
	Mogilev	1,130	1,230	520
Total Belorussian MD		8,060	9,010	3,910
Baltic**	Kaliningrad	610	730	540
	Lithuanian SSR	2,710	3,130	1,570
Total Baltic MD		3,320	3,860	2,110
Carpathian	Vinnitsa	2,140	2,130	540
	Volyn'	890	980	310
	Zhitomir	1,600	1,630	570
	Transcarpathian	920	1,060	310
	Ivano-Frankovsk	1,100	1,250	380
	L'vov	2,110	2,430	1,150
	Rovno	930	1,050	290
	Ternopol'	1,090	1,150	270
	Khmel'nitskiy	1,610	1,620	430
	Chernovtsy	770	840	290
Total Carpathian MD		13,160	14,140	4,540
TOTAL		24,540	26,990	10,570

** Data are rounded to the nearest ten thousand and therefore components may not add to the totals shown.*

***Includes only those areas of the Baltic MD where units estimated to be involved in the reinforcement are located.*

Although details concerning the numbers and types of manpower skills available for mobilization are lacking, some transfers from the civilian economy to the military would be facilitated by the similarity (and, in many cases, identity) between the general equipment used in the civilian sector and that used by the military. A number of Soviet sources have described, for example, several categories of equipment--trucks, bulldozers, graders, and scrapers--that were called up along with their reservist operators prior to the invasion of Czechoslovakia. The machines and operators called up reportedly numbered in the thousands.

Communications technicians could be made available to combat support and service units from the civilian pool of communications personnel. Although estimates on the number of such personnel vary, analysis of unclassified Soviet publications of 1967 indicates that they may total more than 500,000 people nationwide. This total includes possibly as many as 24,000 engineers and 80,000 technicians, about four-fifths of whom seem to be involved with telephone and telegraph communications and the remainder with radio and television.

The Soviet military forces lean heavily on the public health service as a source of reservists. There are a number of indications of peacetime cooperation between military and civil medical authorities. A high ranking Soviet military medical spokesman stated, "Military medical cadres constantly maintain close working contact with the health authorities, mutually decide many questions of epidemiological and preventive care of the population and troop personnel."

According to another Soviet author, civilian medical personnel were included among the reservists called up for the rear service exercise which preceded the invasion of Czechoslovakia. These medical personnel reportedly comprised "a good half" of the military medical personnel in the maneuver.

Soviet statistics for 1965 showed that there were some 3,085,000 civilian personnel in the public

health service, including 55,000 surgeons, 485,000 medical doctors, 70,000 dentists and oral surgeons, 1,690,000 middle medical personnel, and 785,000 female nurses. A continued increase in these numbers is indicated by the fact that there reportedly are now some 695,000 medical doctors in the system.

Mobilization Procedures and Capabilities

Soviet mobilization policies are established by directives of the Council of Ministers. These directives govern the execution of mobilization by the Minister of Defense and the military offices of appropriate governmental agencies.

The mobilization plan is believed to be comprehensive, continually updated, and designed to provide a wide range of options from small, highly selective mobilization to full, countrywide mobilization. It may be designed to be accomplished either covertly or openly, in a single phase or successive phases.

The Soviet system is organized to permit the rapid expansion of the existing forces. The chain of command, which extends down from the Ministry of Defense through the military districts, armies, and their subordinate units, permits rapid dissemination of orders and instructions for implementation of the mobilization plan. The military commissariat (voyenkomat) which exists at republic, oblast, and rayon administrative levels is the specific instrument for mobilization.

The military commissariats at the various administrative levels are responsible for the management of the large numbers of trained and untrained reservists which are available. Personnel requirements are believed intended to be drawn from lists of reservists designated to fill specific slots during mobilization. Many of the troops assigned to units probably are reservists who live and work in the area of the unit garrison. When the mobilization order is issued, these troops are immediately alerted

and vehicles are dispatched to pick them up and transport them to the unit. In addition to the records of reservists, the rayon offices are also believed to maintain records of all other physically fit men living in the area who are liable for military service.

According to one Soviet source, combat alert exercises to prepare a cadre* motorized rifle division (MRD) for combat are required by regulation to be held every four years. The regulations reportedly stipulate that the division must be ready to move 24 hours from the time the alert is called; several sources have reported that in practice mobilizations cadre divisions have achieved readiness to move in 48 hours.

Eastern Europe

Soviet forces in Eastern Europe are generally estimated to be at or near full strength. There is some evidence that these forces may have something less than 100 percent of wartime strength but that these relatively minor shortages are normal and deliberate. The shortages may result in part from personnel attrition in the intervals between conscript callup periods, but some service support elements probably are regularly undermanned. A likely overall manning level for both tank and motorized rifle divisions is between 90 and 95 percent.

The manpower resources for filling out Soviet forces in Eastern Europe and the procedures for getting them to their units have not been identified. However, some probably would be made available from units deploying forward from the USSR. Some reserve personnel

* *Analysis of all available information indicates that a cadre division is one which has up to one-third of its authorized personnel strength and up to one-half of its equipment.*

could be transported individually or in small groups by train or air to these units. The total number, some 19,000 men, is relatively small so that even in the unlikely event that all were transported in major groups only some 13 trains would be required to move all the personnel destined to fill shortages in Soviet divisions in Eastern Europe.

The manning levels in East German divisions (see separate Annex) are estimated to be at 90 to 95 percent of authorized strength. Most combat support units are believed to be at or near full strength while rear services may be at a lower level.

Most Czechoslovak divisions and army support elements probably are manned at 75 to 80 percent of their authorized strength. Three cadre divisions probably have about 30 percent of their personnel. Some front level combat support and service elements are probably at a low level of manning as well.

Estimates of the strength of first-line Polish divisions vary. However, despite these differences it is agreed that all but cadre divisions could be filled out with reservists and be ready for movement the first day--some immediately and others within hours.

The manpower reserves in Eastern Europe probably suffice to bring the ground forces up to authorized strength. However, the level of proficiency in some critical military specialties probably is low.

Good evidence concerning manpower reserves in Poland provides a good insight into mobilization resources and procedures. Polish manpower reserves consist of trained personnel up to 35 years of age (40 years of age if possessing a critical military specialty) and of personnel with civilian specialties useful in the armed forces. As a general rule, reservists are apparently given mobilization assignments in thoseunits and duties in which they have completed their conscript term of service or in which they have participated during military exercises. In addition,

every attempt is made to satisfy the mobilization requirements with reserve personnel who live within the county (powiat) where the unit being augmented is stationed.

Reserve training is conducted continuously on a year-round basis for periods lasting from three days to a maximum of three months. Training of individuals is not conducted regularly, however, and as many as 13 years may pass between the reservist's active duty and his first reserve callup.

[redacted] also indicates that Polish reserve training tends to follow the Soviet approach, which restricts the firing of live ammunition, lacks imagination, and in general does not provide the reservist with a realistic atmosphere in which to learn and practice his job.

There are a number of measures which evidence shows are intended to establish and maintain the peacetime readiness of Polish divisions and to effect the required mobilization. These include:

-- The maintenance of uniforms by some reservists at their homes.

-- The callup of reservists under an alert system ordered by the commander of the unit.

-- The restriction of the amount of equipment which can be away from the unit.

-- The callup of reserves using the personnel and facilities of both the units involved and a civilian courier system as well as communications.

-- The use of nonmilitary manpower to speed up the mobilization process; e.g., in conducting medical examinations, giving inoculations, processing mobilized civilian vehicles, and by assisting in loading and unloading operations.

-- The use of civilian materiel and services by the military such as shops, offices, medical facilities and their equipment, agricultural and industrial articles, transportation facilities, and farm land.

Equipment Requirements

Quantity, Type

The total number of major items of equipment* estimated for the mobilized two-front reinforcing force amounts to some 112,000 to 123,000 items. Tabulations of the CIA and DIA estimates of current holdings and equipment required by the two-front force are given in the Appendix.

Total Requirement and Resources

Combat units probably have most of their weapons and combat vehicles on hand, including all of their tanks and artillery, except that the artillery in some divisions, especially cadre divisions, may not have increased to the new levels (72 howitzers in a motorized rifle division and 60 in a tank division). Shortages of specific types of combat equipment, which include armored personnel carriers (APCs) and self-propelled antiaircraft guns, probably would not be made up before commitment of the two fronts, as no depot stocks of these weapons are known to exist. Substitution of trucks for APCs would occur in many motorized rifle units.

The number of major items of equipment to be mobilized is estimated at around 50,000. The greatest equipment shortages are of general purpose trucks, which would be drawn from the civilian economy. The

* *Major items of equipment are defined as all self-propelled combat vehicles and large weapons, major transport vehicles, and large engineer equipment.*

civilian economy has an estimated 4.7 million trucks of which some 521,600 are in the Belorussian and Carpathian MDs and in the Kaliningrad Oblast and in the Lithuanian SSR of the Baltic MD. At least 10 percent, or some 50,000 trucks, are probably designated and maintained to fill military requirements. The estimated numbers (shown in Table 2, page 18) are derived from unclassified production, export-import, and utilization data.

The Soviet production capacity for motor vehicles is limited, and thus the motor vehicle resource is carefully and sparingly allocated. The military sector is allocated only those vehicles which are actually needed for peacetime operations and training. Analysis of [redacted] and open source Soviet material indicates, however, that a significant portion of the total national motor vehicle resource is assigned to the military as a mobilization pool. These vehicles are designated to fill specific unit requirements upon mobilization. Many of them are in military reserve transport units--called avtokolonnas--where vehicles so designated are maintained according to military specifications. Upon mobilization, these vehicles and their drivers are assigned to specified units as an integral part of the unit's organic motor transport.

One factor which makes civilian trucks suitable for military use is that truck production in the USSR is, to a large degree, standardized. Civilian and military trucks are made up of identical component parts. The principal difference between civilian and military trucks is that most civilian trucks, particularly in the light and medium class, are vehicles with single axle drive, whereas the preponderance of military trucks have multiple axle drive. The military trucks are intended to have greater capability in mud and deep snow and in cross-country operations. Moreover, the military trucks usually are fitted with heavy duty tires with deep treads, which also enhance their capability in mud and snow and in cross-country operations. Although civilian trucks, as a rule, are

Table 2

Estimated Civilian Truck Inventory in the Western USSR Military Districts

Military District	Region or Oblast	Number of Trucks
Belorussian	Brest	23,600
	Vitebsk	25,100
	Gomel'	28,000
	Grodno	20,500
	Minsk (including city of Minsk)	44,900
	Mogilev	22,400
Total Belorussian MD		164,500
Baltic*	Kaliningrad	14,100
	Lithuanian SSR	70,500
Total Baltic MD		84,600
Carpathian	Vinnitsa	40,900
	Volyn'	18,800
	Zhitomir	31,400
	Transcarpathian	20,400
	Ivano-Frankovsk	24,100
	L'vov	46,900
	Rovno	20,200
	Ternopol'	22,300
	Khmel'nitskiy	31,200
	Chernovtsy	16,300
Total Carpathian MD		272,500
	TOTAL	521,600

* *Includes only those areas of the Baltic MD where units estimated to be involved in the reinforcement are located.*

not suitable for cross-country operations*, they are lighter and more efficient and economical in over-the-road operations.

Some military equipment could be drawn from depots stocked for mobilizing units. Many equipment depots have been located, but information on the type and quantity of their stocks is very limited.

Mobilization Procedures

As previously mentioned, the use of civilian trucks by the military was demonstrated during the exercise which preceded the Czech invasion--and in the invasion as well. Many of the trucks probably were from the military reserve pool.

Military reserve transport units reportedly undergo a practice alert at least once every three months. All personnel are reportedly reservists who have completed at least one year of active military service.

Information concerning practice alerts has been obtained from sources who apparently spoke of the artillery regiment of the 66th MRD at Chernovtsy in the Carpathian MD. They stated that a reserve motor unit at Chernovtsy reports within two hours of receipt of alert notification to the artillery regiment, where its trucks are loaded with ammunition, gasoline cans, and other field equipment. Another unit reportedly becomes an ambulance unit of a medical battalion.

Eastern Europe

Soviet forces in East Germany are estimated to have all of their authorized equipment. East German divisions have an estimated 95 percent of their

* *DIA and ACSI believe that civilian trucks are "less" rather than "not" suitable for cross-country operations.*

authorized equipment. Other East German combat and combat support units are believed to have all or virtually all of their equipment. Some shortages probably exist in some engineer, motor transport, and chemical units which will be expanded to larger organizations upon mobilization. The greatest shortages probably exist in rear service units.

Czechoslovak combat units generally appear to be at a somewhat lower level of equipment than East German units. Most Czech divisions are estimated to have essentially all of their combat equipment and at least half of their transport vehicles.

The Czechs probably feel that this equipment level is adequate since there is evidence that they have additional stocks which could be used. the Czechs have enough combat equipment in storage to equip two existing cadre divisions and two new ones.

The majority of Polish divisions are first-line divisions at high equipment levels and probably can be made ready for deployment within hours. Although these divisions would be immediately deployed, they are smaller than their Soviet counterparts and some would lack APCs.

Polish divisions in the Warsaw Military District are substantially below first-line equipment levels and would require several days for the mobilization of vehicles. indicate that these divisions have consistently been equipped at a lower level. The four mechanized divisions are equipped with older tanks and have major shortages of APCs.

indicate that civilian trucks and other vehicles are to be mobilized for the East European armed forces as they are for the Soviet armed forces. This evidence also shows that these vehicles are periodically inspected and tested to determine their condition and ensure their usability for military purposes.

One of the best descriptions of the mobilization procedure for vehicles has been provided by [redacted] Basically, it involves the designation of civilian motor transport units in areas less than approximately 60 miles from the military unit to be augmented. These motor transport units usually do not exceed 200 trucks each. They are subjected to periodic inspections and tests.

Problems in the mobilization process arise because of the unequal distribution of motor transport resources in relation to the mobilization requirement. Military units are not always garrisoned within 60 miles of their assigned vehicles. Moreover, certain industries have such a large and rapid turnover in personnel and equipment that it is virtually impossible to maintain a permanent mobilization stock.

Following are estimates of the civilian truck inventory as of 1 January 1971, based on unclassified production, export-import, and utilization data:

Poland	260,000
East Germany	220,000
Czechoslovakia	210,000

Mobilization Transportation Requirements

Transportation required to execute mobilization would consist mainly of general purpose trucks to pick up reservists and carry them to their units or to designated assembly areas. Transport of most reservists probably is the responsibility mainly of the military commissariat at the rayon administrative level. Vehicles probably are dispatched from elements of automotive trusts, particularly those from the military reserve transport units.

As in the USSR, vehicles from the civilian economy in Eastern European countries are used to transport reservists. Care is taken to ensure that such use does not interfere with the transfer of allocated civilian vehicles to the military units.

Mobilization Facilities Requirements

The facilities required for mobilization apparently vary in type and location in relation to the units they serve. reservists of one MRD reported to the division to receive their uniforms and personal arms while another from a motorized rifle regiment of a tank division stated that the reservists were assembled and outfitted at an installation near the town, but not at the installation where his regiment was located. The men later joined the regiment at its assembly area some 15 to 20 kilometers away from the regiment's installation.

Stock Mobilization Requirements

The classes of supply which will have the most direct bearing on the combat capabilities and effectiveness of Warsaw Pact forces are ammunition and POL. The available data indicate that the following stockage levels (in 1,000 metric tons) could be made available to Warsaw Pact ground forces:

	Ammunition *		POL	
	100% Depot Capacity	80% Depot Capacity	Military	Civilian
East Germany	520	420	490	780
Poland	420	340	440	620
Czechoslovakia	300	240	520	400
Baltic MD	140	110	670	160
Belorussian MD	210	170	810	280
Carpathian MD	140	110	510	240

These figures represent depot capacities only. We have no direct evidence to indicate the actual contents of depots.

* *Ammunition figures in the remainder of this discussion will be based on a depot stockage level of 80 percent of capacity, which is the current intelligence estimate of stock levels.*

A typical Warsaw Pact division, operating as a first echelon attacking unit, is expected to expend approximately 610 metric tons of ammunition and 320 mt of POL per day.* On the basis of this consumption rate, the stocks listed above would last for the following number of division days:

	Ammunition	Military POL	Civilian POL
East Germany	681	1,516	2,421
Poland	550	1,368	1,948
Czechoslovakia	385	1,610	1,234
Baltic MD	187	2,083	494
Belorussian MD	280	2,522	879
Carpathian MD	183	1,603	742

From the above table, the POL stocks estimated in East Germany, Poland, and Czechoslovakia appear to meet the need of the Soviets. For example, utilizing all of the military POL and 50 percent of the civilian POL, an 83-division force could be maintained for 88 days. The ammunition stocks estimated in East Germany, Poland,

** These consumption rates are based on the average first echelon attack consumptions of Soviet tank and motorized rifle divisions.*

and Czechoslovakia could supply a given force for the following time periods:

Divisions	Days
20	80
30	53
40	40
50	32
60	26
70	23
80	20
90	18
100	16

If the ammunition stocks estimated to be in the three western military districts are brought forward, the days of supply could be increased as follows:

Divisions	Days
20	113
30	75
40	56
50	45
60	37
70	32
80	28
90	25
100	22

Within the three western military districts and Poland, East Germany, and Czechoslovakia, there is a total of 83 Warsaw Pact divisions. The ammunition estimated available in Poland, East Germany, and Czechoslovakia alone could last this force for 19 days; if the ammunition estimated available in the three western MDs is added, this capability would increase to 27 days.

These figures are based on a maximum consumption rate for 83 divisions attacking simultaneously. A more realistic appraisal of consumption, considering divisions held in reserve and variances in the level of combat throughout the theater, could decrease average

daily division consumption to 40 percent of the above figures. This could give an estimated 50-day supply of ammunition available in East Germany, Poland, and Czechoslovakia, and a 20-day supply in the western military districts, for a total of 70 days. However, using the maximum consumption rates, there is still enough ammunition in place in East Germany, Poland, and Czechoslovakia to constitute more than an adequate supply for the assembled Warsaw Pact forces for 19 days.

Assembly Requirements

Immediately after being alerted to mobilize, Warsaw Pact forces are to move from their permanent garrisons to alert or assembly areas as rapidly as possible. Such areas are normally about 25 kilometers (15 miles) away. A Soviet division probably requires at least 300 trucks to be able to move from its garrison to its alert area in an emergency. Analysis of photography indicates that even those divisions with the lowest equipment levels probably have several hundred trucks.

Although alert areas need not contain elaborate facilities or equipment, there is evidence that they must assure such things as: suitable conditions for dispersing units and supplies, communications circuits, unrestricted departure to the planned operations zone, and water supplies. Subelements move from the garrison area to the alert area as soon as they are ready rather than waiting for the entire unit to form up. For understrength contingents the alert area may also serve as the reserve area for mobilization.

Movement and Reassembly--Requirements, Capabilities, Procedures, and Constraints

Rail is the primary means of transport for military reinforcement (unit movement and resupply) by Soviet forces from the western military districts to the forward area. All units in the Baltic, Belorussian, and Carpathian military districts would be moved by rail except in those instances where tank transporters were employed to move tracked elements of certain units by road. Road is the primary transportation mode within the forward area because of shorter distances involved. In Poland, Czechoslovakia, and East Germany, moves in excess of 400 km generally would be made by rail. In some instances, for shorter distances tracked elements of a unit would be moved by rail while other elements of the unit moved concurrently by road.

In several instances, Soviet units located within 25 km of East European standard-gauge rail lines would be moved by road directly to East European trains, thereby avoiding transloading delays. Conversely, inaccessibility of suitable railheads or low line capacities in destination areas would make it expedient to offload units at locations convenient for road movement to the final destination.

Although there exists a large, well developed inland waterway system in the Soviet Union, East Germany, and Poland, which over a sustained period would significantly increase strategic resupply capabilities, the time required to establish an orderly flow of military cargoes precludes its consideration as a factor in the initial stages of a rapid military deployment such as described in this study.

Methodology

To derive the movement times for units traveling by rail the planning constants used were:

Train loading time	2 hours
Train unloading time	2 hours
Train transloading time	7 hours
Train speed	40 km per hr/24 hrs per day
Military train	200 axles/50 cars (Soviet) 120 axles/30-35 cars (East European)
Soviet tank division	31 Soviet trains/ 45 East European trains*
Soviet motorized rifle division	31 Soviet trains/ 48 East European trains
Soviet front headquarters and troops	62 Soviet trains/ 93 East European trains
Soviet front rear element	111 Soviet trains/ 166 East European trains
Soviet army headquarters and troops	13 Soviet trains/ 16 East European trains
Soviet army rear elements	52 Soviet trains/ 77 East European trains

* *While a tank division and a motorized rifle division may require the same number of trains to move within the Soviet Union, they will require a different number of trains when moving in East Europe.*

Polish tank division	48 East European trains*
Polish motorized rifle division	50 East European trains*
Czech tank division	50 East European trains*
Czech motorized rifle division	52 East European trains*
Highway tank transporter speed	20 km per hr
Road utilization	16 hrs/24 hrs per day

Routes

Routes for rail movement were established so that high capacity routes could be fully utilized and relatively high speeds maintained throughout a journey. Notwithstanding the military requirements placed on them, the capacities of the lines are so great that the rail networks should be able to accommodate other traffic essential to the economies of the Warsaw Pact countries. Even on the military routes, phasing of units and formations would permit the inclusion of some logistic traffic without detriment to the overall deployment. Concentrations of the military

* *Rail requirements for Polish and Czech units are based upon estimated TOEs which are not as explicit in the breakdown of major items of equipment as those on which Soviet requirements are based. These deficiencies and other uncertainties in the TOE estimates for Polish and Czech divisions result in the implication--almost certainly false--that these divisions would require more training than similar Soviet divisions. The press of time, and lack of adequate information, precluded any reassessment of the TOEs. However, the resulting small discrepancies have no effect on the main conclusions of this study.*

traffic on specific routes also aids command and control, and minimizes disruption on other routes.

There is no constraint on road movement in the western USSR but some congestion is possible in the deployment areas in Poland, East Germany, and Czechoslovakia. Routes for tank transporter convoys would be separate from those of other wheeled vehicle convoys and would not impede road movement.

Equipment

Since the requirements for Soviet locomotives and rolling stock originate in the general area where normally 30 percent of Soviet railway stock is deployed, it is estimated that sufficient equipment can be made available by M + 2 days to ensure continuous movement from that time on. Some equipment could be made available within 24 hours. Assembly of the required rolling stock is not considered to be a problem since the western military districts conform geographically to the semiautonomous railway districts which are organized to cope with such a requirement. Adequate resources are available in the East European countries for assembly of the requisite locomotives and cars.

Movement by road is dependent on the mobilization of reserve vehicles. Provisions are adequate to ensure that this is done efficiently, and movement timings reflect this mobilization requirement. Highway repair and maintenance resources would be fully committed to route maintenance and, if necessary, clearance.

Movement

Unit and formation movement is based on readiness data and available route capacity. In general, restrictions occur only at unit origin and destination points and especially where formations are located on low-capacity secondary rail routes. Consequently, these units can only achieve a slow deployment. This problem of low capacity can be alleviated by the use of tank transporters where they can hasten completion of deployment.

Rail cargo crossing into East Europe from the USSR has to be transloaded because of the differing rail gauges. The Soviets have minimized this problem

by the construction of many large transloading zones. The capacity of these transloading zones exceeds the capacity of the rail lines serving them so that, except for an initial delay of approximately 7 hours, the traffic flow is not impeded. Each transloading zone consists of parallel East European and Soviet gauge track stretching for as much as 40 to 50 km with several station complexes.

The rail routes in the Baltic coastal area of Poland and East Germany have a low capacity and the rail routes in western Czechoslovakia are congested. In both these areas wheeled traffic can be moved by road while tracked vehicles are moved by train to speed the overall movement.

It is estimated, primarily on the basis of photography, that there are over 1,900 tank transporters in the western USSR and that many of these vehicles will be used in the deployment of Soviet units. The locations of the tank transporters are as shown in the table on page 31 and the units have been utilized in this study to lift the tracked elements of the formations listed opposite each location. In addition, the transporters would be used to assist in the dispersal of tracked vehicles in the forward areas once the initial lift from the USSR has been completed.

In general, the selection of units to be moved by road has been determined by the need to expedite movement and ease demands on rail capacity in specific areas and the need to shuttle units through the Baltic bottleneck in and around Szczecin. A total of 1,580 transporters is utilized during deployment, leaving a reserve of 120 in the north (Moscow) and 220 in the south (Kiyev) for support of subsequent operations.

Constraints

In this study the time needed to mobilize forces and assemble transport was a constraining factor. An initial constraint was the marshaling of sufficient amounts of rolling stock for full utilization of the Soviet rail lines to the western border transloading

Table 3

Estimated Utilization of Tank Transporters in Western USSR for Warsaw Pact Reinforcement

Location of transporters	No. of tank transporters	Unit transported	Time of transport
Baltic MD (Kaliningrad)	440	12th Mech	M to M+1
		1st GMRD	M+4 to M+6
		1st Mech	M+5 to M+7
		2nd Mech	M+5 to M+7
		15th Mech	M+7 to M+9
Belorussian MD (Volka)	440	8th Tank	M+7 to M+9
Carpathian MD (Novograd Volynskiy)	240	97th GMRD	M+4 to M+7
Moscow MD			
(Yaroslavl'--reserve)	120		
(Naro-Fominsk)	240	22nd Gds Tank	M+4 to M+8
(Kursk)	220		
Kiyev MD (reserve) (Volnoye)	220		

zones. Although some divisions were mobilized and ready for movement on M + 1, generally movement was not initiated until M + 2, when sufficient rolling stock became available. The limited capacity of rail lines to the border areas from some unit mobilization locations caused increased transit times for these units on the move and delayed initiation of new unit movements.* Late mobilization and movement of some units in the forward area caused saturation of rail lines required by reinforcing units moving to their deployment areas.

In the Baltic MD, a constraint was the late movement of elements of the Warsaw Army which utilized the same rail lines in deploying to the forward area. Transit of army support units was also delayed because of clogged rail lines. The last Baltic MD division closed at M + 17.

In the Belorussian MD, five of the ten divisions were ready for movement by M + 3, four by M + 5, and one at M + 14. These later dates constituted a mobilization constraint.

In the Carpathian MD, three of the ten divisions were ready for movement by M + 1, six by M + 3, and one at M + 14. One division encountered a three-day delay between ready date and movement date.

A major constraint was caused by saturation of rail lines in the area of origin due to the simultaneous

** Use of extraordinary rail operating procedures for short periods of time could ease or eliminate the apparent constraint imposed by the limited sustained capacities of these rail lines.*

ready date of five divisions. All Carpathian divisions were closed by M + 19.*

Movement Summary

Based on calculations of readiness status, a total of 34 Warsaw Pact ground force divisions in East Germany, Poland, and Czechoslovakia could be available for commitment against the NATO Central Region on M day (the Annex shows total units closed from M through M + 20); 20 of these divisions could be in the Central Front on the Pact's main axes of advance, 4 could be ready in the Northern Front, 7 in the Southern Front, and 3 in the Special Operations Group. These forces represent the standing forward units, which require only short moves from their permanent peacetime garrisons to their assigned wartime sectors of operation.

By M + 5 an additional 20 Warsaw Pact ground force divisions from Eastern Europe could be available, bringing the total of combat divisions in the

* *The separate Annex to this report, containing additional data used in the mobilization and movement calculations, supplements this section of the report and the section (beginning on page 73) on the movement of Warsaw Pact reinforcements. The Annex includes:*

-- *The order of battle used in movement computations and in estimates of unit readiness and closing times.*

-- *Graphic presentation of estimated military utilization of rail and road facilities for movement.*

-- *Tabular estimates of the rail utilization and movement factors for each unit involved in the movement estimates.*

forward area to 54. By M + 9, 60 percent of the reinforcing divisions and over 90 percent of the forward area divisions would have closed. By M + 11, 90 percent of all divisions (75) would be closed, with only the 4 reserve divisions for the Northern and Southern fronts and 4 reinforcing divisions not in position. By M + 20, all 25 of the divisions from the Baltic, Belorussian, and Carpathian military districts, along with all army and front headquarters and support units, would be in the forward area. At that point, a force of 83 Warsaw Pact combat divisions would be organized in five fronts and ready for commitment against the NATO Central Region.

Air Forces

Air Mobilization Requirement

Aircraft

Aircraft would be moved forward from the western USSR (tactical air armies in the Belorussian, Baltic, and Carpathian military districts) as part of two reinforcing fronts, in the numbers shown in Table 4, opposite page.

The Soviets probably could fly about 75 percent of the above aircraft to bases in the forward area by M + 1. It is unlikely that the Soviets could have

Table 4
Aircraft in the Western USSR to Be Moved
Forward in Two Reinforcing Fronts

Aircraft type (and model)	1st TAA, Belo MD	30th TAA, Baltic MD	57th TAA, Carp MD	Totals
All-weather interceptor (MIG-21 Fishbed, few MIG-19 Farmer)	85	75	75	235
Day fighter (MIG-17 Fresco)	25		15	40
Fighter-bomber (SU-7 Fitter, MIG-17)	110	35	110	260
Light bomber (YAK-28 Firebar, IL-28 Beagle)		95	65	160
Reconnaissance-fighter (MIG-21R, MIG-17)		30	15	45
Reconnaissance (YAK-27/28,IL-28R)	30	30	30	95
Total combat aircraft	255	265	310	830
Medium helicopter	15	40	50	100
Heavy helicopter	15	20	30	60
Light transport*	5	25	20	50
Medium transport*		1	5	5
Total support aircraft	35	85	100	220

Note: Figures above five are estimates rounded to the nearest five.

** The transports organic to the tactical air forces are likely to remain based in the western USSR, and be employed throughout the reinforcement for the movement of combat air unit personnel to the forward area. Logistic and service support needed in the forward area while these transports are being employed in the movement of forces from the western USSR can be provided from that available at airfields in the forward area. The transports and their support personnel and equipment are therefore not considered as part of the "required" movement. This does not rule out the fact that, over the longer term, some may be based in the forward area to provide continuing support, once the move is completed.*

* * * * *

The Assistant Chief of Staff, Intelligence, USAF, notes that the table above includes the Soviet collocated aircraft in the three western military districts. However, a major portion of the 1,800 combat-type aircraft in training establishments and 900 tactical aircraft in reserve have been omitted. He further notes that seven days after the invasion of Czechoslovakia in August 1968, Soviet APVO (PVO Aviation) units began to be deployed in Czechoslovakia. Thus the possibility of APVO units in any future European combat situation cannot be excluded.

all of the combat air units from the western USSR deployed into the forward area--at full strength--before M + 5. This estimate allows for the extra aircraft which are in most regiments to compensate for the approximately 10 percent of the aircraft which are expected to be unserviceable.

Following is a summary of tactical aircraft permanently stationed in the forward area. Since these aircraft already are in the forward area and are fully combat ready, no mobilization or strategic redeployment of them is required.

	Number of combat aircraft
Northern Front	
Soviet 37th TAA	280
Polish tactial air forces	400
Central Front	
Soviet 24th TAA	690
Southern Front	
Czechoslovak tactical air forces	330
Soviet tactical air forces in Czechoslovakia	80
Possibly Soviet tactical air forces in Hungary	220
Total	2,000

Manpower

Quantity

The three Soviet tactical air armies which would be required to redeploy in the event of mobilization are in the Baltic, Belorussian, and Carpathian military districts, and include approximately 32,400

personnel (see Table 5). The Moscow and Kiyev military districts have available as a reserve about 11,000 tactical air force personnel. This figure assumes that all tactical air units in the western USSR are at full strength.

Table 5

Estimates of Personnel in Soviet Tactical Air Armies to Be Moved Forward in Two Reinforcing Fronts

Units in move status	TAA personnel	VTA supporting personnel	Unit total
1st TAA, Belorussian MD	7,600	1,000	8,600
30th TAA, Baltic MD	8,700	2,700	11,400
57th TAA, Carpathian MD	9,500	2,900	12,400
Total	25,800	6,600	32,400
Units in reserve			
Tactical air units, Moscow MD	5,600	2,000	7,600
69th TAA, Kiyev MD	2,400	1,000	3,400
Total	8,000	3,000	11,000

Note: Manning estimates are based on information on typical regimental strength. The estimate that all units in the western USSR are at full manning is largely an assumption based on peacetime activity levels.

Non-Soviet Warsaw Pact support units are maintained in place as cadres. These units can be augmented by personnel drawn from reserve forces (see section on quality, below). The numbers of personnel shown in Table 6 for East European air forces do not include those in many skills accounted for elsewhere; for example, radar manning is included with the ground forces, and the large number of civilians in logistic and depot support operations are not counted.

Table 6

Estimates of Personnel in Operational East European Tactical Air Forces

Country	Personnel	
	Active	Reserve
East Germany	12,000	4,400
Poland	25,000	9,000
Czechoslovakia	18,000	6,000
Total	55,000	19,400*

Note: Personnel are in place except for those forces called from the reserve for augmentation under Pact mobilization.

** This figure represents the number of reservists which an be mobilized by M + 30. The total number of reservists available is estimated to be approximately 26,000.*

Specialty

Because of the emphasis on flexibility and survivability in the Soviet tactical air forces, air divisions and air regiments are given a minimum of technical responsibilities. In addition to actual air crews, support personnel are maintained only to a level absolutely necessary for providing operational, maintenance, ordnance, and housekeeping support. Major maintenance (such as intermediate and depot)

is performed away from the unit's combat location. The maintenance site is determined also by the type of air base; for example, the facilities available at natural surface field deployment bases are very limited, as are the technicians to support them. The air technical battalion is the basic supply and servicing unit of the Soviet military aviation ground organizations. Almost all specialists except the squadron maintenance specialists who service the aircraft are located in the air technical battalion.

Squadron maintenance personnel perform pre- and postflight checks and the 25-hour periodic inspections. They are primarily responsible for visual examinations and elimination of less complex malfunctions reported by the pilot. They service the aircraft with fuel, oxygen, and armament.

Specialists and their equipment are deployed to dispersal airstrips by motorized elements. The typical specialist mobile unit would consist of at least six vehicles carrying repair shops, testing laboratories, electric power, field tool rooms, parts, compressors, starting units, dollies, ladders, and tents. All or portions of their support element may be air transported when adequate numbers and types of aircraft are provided from division, air army, or Military Transport Aviation (VTA).

Air units are combat ready, with all required personnel available on active duty. Further augmentation could be obtained by recalling recently released servicemen within the Soviet Union.

Quality

There is evidence of essential differences between the quality of manpower in the forward area and in the Soviet Union.

The East European forces all maintain an identified reserve which can be mobilized to augment combat air units (Table 6). These reserve forces would be mobilized and added to air units as they were needed.

The greatest deficiency in Warsaw Pact air support is the lack of a skilled reserve technical force in the Soviet tactial air forces. This reserve is needed to help maintain initially high sortie rates and to handle the consequent increase in aircraft inspections, replacements, and overhauls. It would also aid in battle damage maintenance. This deficiency would seriously hamper Pact tactical air army support in a long conventional war.

Ground Support Equipment

Quantity

Soviet ground support equipment (GSE) is characterized by its mobility and can be deployed quickly to dispersal bases during combat. Most essential maintenance, servicing, loading, and operational support equipment is assigned to the air technical battalion supporting each Soviet air regiment. The number of vehicles in a technical battalion varies with the type of regiment it supports: about 140 for a fighter regiment, 160 for a light bomber regiment, and 90 for a helicopter regiment. In addition, about 60 miscellaneous motor vehicles per air regiment are required by the command element and logistic and signal units.

The three TAAs from the Baltic, Belorussian, and Carpathian MDs are composed of the equivalent of 28 air regiments--17 fighter, seven light bomber, and four helicopter. With above GSE requirements, approximately 5,600 motor vehicles are needed to support these air regiments. For sustained combat operations from deployed Central Region bases, this GSE would necessarily accompany the air regiments when GSE resources at staging air bases are unavailable or insufficient.

Identified and Estimated Resources

Tables 7 and 8 on the following pages reflect the primary GSE equipment resources to be moved for Warsaw Pact mobilization. Additional GSE would be

Table 7

Ground Support Equipment of the Soviet 1st, 30th, and 57th Tactical Air Armies by Type of Regiment

	Fighter regts	Light bomber regts	Heli-copter regts	Total
Number of regiments (or equivalents) supported	17	7	4	28
Vehicle allocations to air technical battalions				
Fuel trucks (1,650 gals)	340	126	48	514
Fuel trucks (4,250 gals)	0	28	0	28
Oxygen trucks	34	14	8	56
Compressed air trucks	51	21	8	80
Hydraulic system trucks	85	28	8	121
Towing vehicles	61	28	0	89
Crane trucks	17	21	4	42
Maintenance trucks	170	84	16	270
Aux power unit trucks	136	56	16	208
Runway sweepers	34	14	0	48
Snow plows	42	21	8	71
Fire trucks	34	14	8	56
Ambulances	34	14	8	56
Personnel vehicles	272	140	80	492
Communications vehicles	68	28	12	108
General purpose trucks	340	210	80	630
GCI trucks	102	0	0	102
Starter carts	340	105	40	485
Armament carts	170	140	0	310
Mobile floodlights	68	28	16	112
Total	2,398	1,120	360	3,878
Other vehicles				
Command element	204	84	48	336
Logistic and signal units	850	350	200	1,400
Total vehicles	3,452	1,554	608	5,614

Table 8

Ground Support Equipment of the Soviet 1st, 30th, and 57th Tactical Air Armies

	1st TAA, Belorussian MD			30th TAA, Baltic MD			57th TAA, Carpathian MD		
	Fighter regts	Light bomber regts	Helicopter regts	Fighter regts	Light bomber regts	Helicopter regts	Fighter regts	Light bomber regts	Helicopter regts
Number of regiments (or equivalents)	6	1	1	4	4	1	7	2	2
Number of aircraft	222	32	29	139	126	56	248	64	77
Vehicles in air technical battalions									
Fuel trucks (1,650 gals)	120	18	12	80	72	12	140	36	24
Fuel trucks (4,250 gals)		4			16			8	
Oxygen trucks	12	2	2	8	8	2	14	4	4
Compressed air trucks	18	3	2	12	12	2	21	6	4
Hydraulic system trucks	30	4	2	20	16	2	35	8	4
Towing vehicles	24	4		16	16		21	8	
Crane trucks	6	3	1	4	12	1	7	6	2
Maintenance trucks	60	12	4	40	48	4	70	24	8
Aux power unit trucks	48	8	4	32	32	4	56	16	8
Runway sweepers	12	2		8	8		14	4	
Snow plows	9	3	2	12	12	2	21	6	4
Fire trucks	12	2	2	8	8	2	14	4	4

Table 8
(continued)

Ground Support Equipment of the Soviet 1st, 30th, and 57th Tactical Air Armies

	1st TAA, Belorussian MD			30th TAA, Baltic MD			57th TAA, Carpathian MD		
	Fighter regts	Light bomber regts	Helicopter regts	Fighter regts	Light bomber regts	Helicopter regts	Fighter regts	Light bomber regts	Helicopter regts
Ambulances	12	2	2	8	8	2	14	4	4
Personnel vehicles	96	20	20	64	80	20	112	40	40
Communications vehicles	24	4	3	16	16	3	28	8	6
General purpose trucks	120	30	20	80	120	20	140	60	40
GCI trucks	36			24			42		
Starter carts	120	15	10	80	60	10	140	30	20
Armament carts	60	20		40	80		70	40	
Mobile floodlights	24	4	4	16	16	4	28	8	8
Total	843	160	90	568	640	90	987	320	180
Command element vehicles (12 per regt)	72	12	12	48	48	12	84	24	24
Logistic and signal unit vehicles (50 per regt)	300	50	50	200	200	50	350	100	100
Total vehicles	1,215	222	152	816	888	152	1,421	444	304

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available from three sources: Soviet equipment presently available at deployment bases; equipment from indigenous sources in Warsaw Pact countries; and equipment from Soviet civilian resources.

Air Movement Requirements

General

The immediate logistic requirement facing the three reinforcing tactical air armies in the western USSR would be the transport of their operational and ground support personnel and ground support equipment (GSE) to the staging bases in the frontal areas of the Central Region. Approximately 32,400 staff and support personnel and 5,600 GSE vehicles would have to be moved from 29 airfields supporting the equivalent of 28 air regiments and headquarters. Movement of any non-Soviet forces from eastern or central Czechoslovakia and Poland to more forward areas would be accomplished by national air or road nets.

The most expedient means of moving all combat aircraft forward and bringing them up to operational status in the shortest time possible would be to deploy the air regiments to compatible operational air bases--MIG-21 Fishbed units to air bases housing Fishbed units, IL-28 Beagle units to air bases with Beagle units, etc. Aircraft could be relocated to East Germany and western Czechoslovakia and operate with available resources there for 3 or 4 days until support personnel and GSE of the three TAAs arrived.

Facilities

Both air and rail facilities are available at all the home airfields of the three TAAs. Air and rail loading and departure would take place at the 29 TAA airfields--9 in the Baltic MD, 8 in the Belorussian MD, and 12 in the Carpathian MD. (See Table 9). The bulk of GSE with the remaining personnel from the combat regiments could be rail-loaded

Table 9

Aircraft and Airfields of the Soviet
1st, 30th, and 57th Tactical Air Armies

1st Tactical Air Army, Belorussian Military District

Organization	Aircraft Type and Number		Runway Length (ft)	Airfield	Location
Ftr Div HQ			8,500	Shchuchin	53-36N/024-46E
Regt	Farmer B,E	12		Shchuchin	
	Fresco A,B,C	25		Shchuchin	
Regt	Fishbed D/F	37	8,200	Ross'	53-18N/024-22E
Regt	Fishbed D/F	37	8,200	Bereza	52-33N/024-53E
Ftr-Bmr Div HQ			8,000	Lida	53-53N/025-23E
Regt	Fresco A,B,C	37		Lida	
Regt	Fresco A,B,C	37	8,200	Postavy	55-07N/026-46E
Regt	Fitter	37	8,500	Bobro-vichi	52-17N/029-21E
Independent units					
1st TAA HQ trspt unit			6,000	Minsk South	53-52N/027-32E
Trspt unit	Crate	2		Minsk South	
	Cab	4		Minsk South	
Recce Regt	Beagle	10	8,500	Shchuchin	53-36N/024-46E
	Brewer D	22			
Hcptr Regt	Hook	14	8,500	Kobrin	52-14N/024-21E
	Hound	15			

Table 9 (continued)

30th Tactical Air Army, Baltic Military District

Organization	Aircraft Type and Number		Runway Length (ft)	Airfield	Location
Ftr Div HQ			11,500	Siauliai (Shyaulyay)	55-54N/023-23E
Regt	Fishbed D/F	37		Siauliai	
Regt	Fishbed D/F	37	6,600	Riga/ Rumbua	56-53N/024-14E
Bmr Regt	Brewer	32	8,200	Chernya-khovsk	54-36N/021-47E
Bmr Regt	Beagle	10		Chernya-khovsk	
	Brewer	32		Chernya-khovsk	
Trspt unit	Cab	5		Chernya-khovsk	
Bmr Regt	Brewer	32	8,200	Tukums	56-57N/023-13E
Ftr-Bmr Regt	Fresco A,B,C	37	6,600	Vasalemma	59-16N/024-12E
Recce Regt	Beagle	20	6,400	Krustpils	56-32N/025-53E
	Fishbed H	16			
	Fresco A,B,C	12			
30th TAA HQ trspt unit					
Trspt Sq	Camp	1	5,700	Riga/ Spilve	57-00N/024-05E
	Crate	10			
	Cab	10			
	Hound	2			
Hcptr unit	Hook	6	6,000	Kalinin-grad/Zeye-pappen	54-45N/020-17E
	Hound	2			
Hcptr unit	Cab	1	4,400	Kaunas	54-53N/023-53E
	Hound	2			
Hcptr Regt	Hook	12		Kaunas	
	Hound	32			

Table 9 (continued)

57th Tactical Air Army, Carpathian Military District

Organization	Aircraft Type and Number		Runway Length (ft)	Airfield	Location
Ftr Div HQ			6,600	Ivano-Frankovsk	48-53N/024-91E
Sqdn	Fresco A,B,C	15		Ivano-Frankovsk	
Regt	Fishbed D/F	25	8,500	Mukachevo	48-24N/022-41E
	Fishbed J	12			
Regt	Farmer B,E	37	6,600	Staro-Konstantinov	49-45N/027-16E
Bmr Regt	Beagle	32		Staro-Konstantinov	
Ftr Bmr Div HQ			8,200	Lutsk North	50-47N/025-21E
Regt	Fitter	37		Lutsk North	
Regt	Fresco A,B,C	37	6,600	Dubno Northeast	50-27N/025-50E
Regt	Fresco A,B,C	37	8,300	Chortkov	48-59N/025-44E
Recce Sq	Fishbed H	16		Chortkov	
Bmr Regt	Brewer	32	8,200	Gorodok	49-44N/023-40E
Recce Regt	Mangrove	32	6,600	Kolomyya	48-32N/025-08E
57th TAA HQ trspt unit			6,400	L'vov/Sknilov	49-49N/023-57E
Trspt Regt	Camp	5	6,400	L'vov/Sknilov	
	Crate	5			
	Cab	5			
	Hound	5			
Hcptr Regt	Cab	1	6,200	Brody North	50-08N/025-10E
	Hook	15			
	Hound	20			
Hcptr Regt	Hook	13	7,500	Sambor	49-33N/023-20E
	Hound	20			
Trspt unit	Crate	9	6,600	Chernovtsy Northwest	48-23N/025-46E
	Hound	4			

at 24 of those airfields. Staff and support personnel would depart by air from all 29 airfields in the three military districts.

Transportation

Air Transportation Resources

A portion of the personnel would be transported using the resources organic to the tactical air armies. The remainder must be transported by other means such as rail, Military Transport Aviation (VTA), or Aeroflot. (See Table 10, page 50.) Some personnel for transport units are likely to remain at major transport bases in the USSR. Transport units are expected to move their own personnel. Helicopter units represent a small number of personnel, and those not transported by the helicopters themselves could be hauled easily by other means.

Most combat regiments have one or two light transport aircraft. These are used to transport headquarters staff and key technical personnel with the regiment. The capacity of each transport is usually about 20 men per IL-14 Crate and 25 per LI-2 Cab aircraft. In three round trips (within a 24 to 36 hour period) these regimental transports could lift regimental headquarters staff, key technical personnel, and the air crews that do not accompany the combat aircraft--a total of 60 to 150 men.

Each of the three air armies also has a transport unit subordinate to the air army headquarters.

These aircraft presumably will be used to transport the headquarters and staffs of the air army and the technical personnel of the divisions, along with additional support personnel from the combat regiments. These transports are estimated to make only three round trips. This estimate is probably low, as the air army transports probably would begin flying on the first day, moving some command and technical personnel to the forward area in advance of the combat units, and continue flying throughout the entire mobilization and reinforcement process. At the same time, however, some of these aircraft would be called upon to move personnel of the ground forces (major command and communication elements, for example).

The remaining personnel must be transported by rail or a nonorganic airlift such as VTA or Aeroflot Some personnel would accompany rail shipments of suppor equipment.

VTA Central can allocate enough aircraft to the TAAs in the western USSR to conduct a one-time airlift of 4,480 ground crew personnel and technicians and unique equipment. These personnel and equipment would precede the air regiments and would be in place at deployment air bases ready to receive and support the reinforcing TAAs. Following this airlift, most VTA aircraft resources would be available to provide airlift support for the Soviet ground forces or other non-TAA forces.

An additional 8,100 support personnel could be airlifted in 24 hours by 86 Aeroflot IL-18 Coot aircraft.

Table 10

Transportion of Personnel and Ground Support Equipment in the Soviet 1st, 30th, and 57th Tactical Air Armies

	Total personnel	Personnel transported by air: Crews with aircraft	VTA	TAA transports	Aeroflot	Total by air	Personnel transported by rail	Ground support equipment transported by rail (vehicles)
1st TAA (Belorussian MD)	8,600	440	1,280	360	2,150	4,230	4,370	1,589
Fighter regts (6)*		225	960					1,215
Light bomber regts (1)		70	160					222
Helicopter regts (1)		115	160					152
Transport unit		30						
30th TAA (Baltic MD)	11,400	760	1,440	2,100	2,850	7,150	4,250	1,856
Fighter regts (4)		140	640					816
Light bomber regts (4)		280	640					888
Helicopter regts (1)		205	160					152
Transport unit		135						
57th TAA (Carpathian MD)	12,400	800	1,760	1,740	3,100	7,400	5,000	2,169
Fighter regts (7)		250	1,120					1,421
Light bomber regts (2)		225	320					444
Helicopter regts (2)		200	320					304
Transport unit		125						
Total	32,400	2,000	4,480	4,200	8,100	18,780	13,620	5,614

** The number of regiments shown in parentheses in some cases represents equivalent elements rather than identified regiments.*

Rail Movement Requirement

The GSE of the three TAAs, totaling some 5,600 vehicles (Table 7) and the 13,600 personnel to be moved by rail will require 84 200-axle trains for transportation to the USSR - East European border, and 118 120-axle trains westward from the Soviet border.

The GSE is unsophisticated and mobile, and can be assembled and prepared for loading on trains within 24 hours, at which time personnel can also be loaded. Rail movement to three major reception areas in the Berlin, Dresden, and Prague areas would take 19 hours from the closest airfield at Kaliningrad, and 49 hours from the most distant in Vasalemma. An additional 24 hours would suffice to move the GSE and personnel from the three reception areas to their airfields.

Thus, the three TAAs with as many as 75 to 80 percent of their aircraft, personnel, and equipment could be in place in forward staging airfields three to four days from the time orders are given to reinforce. At least five days would be required to deploy all units to forward staging airfields at full strength.

Air Reception Requirement

Facilities

The USSR and Eastern European countries now have enough airfields and related facilities to support

their air forces in varying roles and to ensure ease of deployment and dispersal. All major airfields have been or are being equipped with modern lighting, radio navigation aids and radar equipment, refueling systems, POL storage, increased munitions storage, and other supporting facilities.

There are about 450 airfields opposite the Central Region (including Hungary). Of these, 150 are jet-suitable and have hard-surface runways of 6,000 feet or longer. Soviet forces are widely dispersed on 35 of these 150 airfields and Eastern European forces occupy 39, for a total of 74, as shown below.

	Number of air bases occupied by combat aircraft of		
	Soviet forces	Other Pact forces	All Pact forces
East Germany	20	6	26
Poland	7	20	27
Czechoslovakia	3	10	13
Hungary	5	3	8
Total	35	39	74

The 74 presently occupied airfields provide a base for further dispersal or reinforcement to the other 76 jet-suitable airfields. Moreover, major elements of Warsaw Pact air forces can disperse further and operate from natural surface airfields.

The airfield improvements mentioned previously are expected to become general in the East European countries. It is also likely that some additional natural surface strips will be prepared. In future construction, especially in the forward areas, emphasis is likely to be placed on longer runways and the construction of essential facilities, especially increased POL storage and storage and testing facilities for air-deliverable munitions.

The Soviets have made provisions for rapid logistical support of contingency operations. All 150 jet-suitable runways are both rail and road served and the Soviets have repeatedly demonstrated their proficiency at trucking supplies to the airfields from rail facilities.

The amount of POL stored at airfields is not known. At Soviet airfields in the forward areas capacities, where known, range from about 500 metric tons to 5,000 mt. In addition, portable POL storage tanks made in the Soviet Union have been identified at some 60 East European installations which have no permanent storage facilities.

To accommodate Soviet tactical air reinforcements at the fastest possible rate, the Soviets would initially utilize currently operable bases in East Germany, Czechoslovakia, and western Poland. Deployment of the majority of the units currently occupying these Warsaw Pact bases to dispersal fields in the area would provide reception facilities for regimental size units of like aircraft; however, base capacities would permit joint tenancy under crowded conditions. Current Soviet tactical air bases in the Central Region are shown with their compatible aircraft in Table 11. It is probable that all Soviet bases in East Germany would be utilized in addition to Soviet and national bases in Czechoslovakia and the westernmost bases in Poland.

Table 11

Primary Reception Facilities for Soviet Reinforcement Air Forces

Airfield	Location	Runway length (ft)	Present aircraft type and number		Mission
East Germany					
Alt Lonnewitz	51-33N/013-13E	8,400	Fishbed D/F	37	Ftr
Altenburg	50-59N/012-30E	8,200	Fishbed D/F	37	Ftr
Merseburg	51-22N/011-57E	8,200	Fishbed D/F	37	Ftr
Zerbst	52-00N/012-09E	8,200	Firebar	23	Ftr
			Farmer B,E	12	
Juterbog	52-00N/012-59E	8,200	Fishbed D/F	37	Ftr
Kothen	51-43N/011-58E	8,200	Fishbed J	37	Ftr
Wittstock	53-12N/012-31E	7,800	Fishbed D/F	37	Ftr
Gross Dolln	53-02N/013-33E	11,500	Fishbed D/F	25	Ftr
			Fishbed J	12	
Putnitz	54-16N/012-27E	7,900	Fishbed D/F	37	Ftr
Briesen	52-02N/013-45E	8,200	Fresco A,B,C	37	Ftr-Bmr
Grossenhain	51-19N/013-33E	7,900	Fitter	37	Ftr-Bmr
Finsterwalde	51-36N/013-45E	7,800	Fitter	40	Ftr-Bmr
Rechlin/Larz	53-18N/012-45E	7,800	Fitter	48	Ftr-Bmr
Parchim	53-26N/011-47E	8,400	Fitter	24	Ftr-Bmr
			Fresco A,B,C	13	
Neuruppin	52-57N/012-47E	7,900	Fresco A,B,C	37	Ftr-Bmr
Finow	52-50N/013-42E	8,200	Hound	5	Hcptr
Parchim	53-26N/011-47E	8,400	Beagle	12	Bmr
Stendal	52-38N/011-49E	8,200	Beagle	10	Bmr
Werneuchen	52-38N/013-46E	8,200	Mangrove	32	Recce
Welzow	51-35N/014-08E	8,200	Brewer D	32	Recce
Allstedt	51-23N/011-27E	8,200	Fishbed H	37	Recce
Brandis	51-20N/012-39E	7,200	Hook	16	Hcptr
			Hound	10	
			Harke	1	
			Hip	12	
Kummersdorf	52-08N/013-18E	8,200	Coke	2	Hcptr
			Crate	10	
			Cab	10	
			Hound	10	
Mahlwinkel	52-23N/011-50E	8,200	Hound	4	Hcptr
Neuruppin	52-57N/012-47E	7,900	Hound	4	Hcptr
Oranienburg	52-44N/013-13E	8,200	Camp	36	Trspt
			Hound	3	

Table 11
(continued)

Primary Reception Facilities for Soviet Reinforcement Air Forces

Airfield	Location	Runway length (ft)	Present aircraft type and number		Mission
Czechoslovakia					
Mimon	50-37N/014-44E	8,000	Fishbed D/F	37	Ftr
Sliac	48-38N/019-08E	6,600	Fishbed D/F	37	Ftr
Milovice	50-14N/014-55E	8,500	Fishbed H	12	Recce
			Camp	8	Trspt
			Cab	5	
			Hound	5	
Olomouc/ Neredin	49-35N/017-12E	4,100	Hound	5	Trspt
Poland (bases for Soviet 37th TAA)					
Stargard Szczecinski	53-17N/014-58E	8,200	Fishbed D/F	24	Ftr
			Fishbed J	13	
Chojna	52-56N/014-25E	7,500	Fishbed D/F	37	Ftr
Kolobrzeg	54-12N/015-41E	8,200	Fishbed D/F	37	Ftr
Osla	51-19N/015-44E	8,200	Fitter	37	Ftr-Bmr
Zagan	51-38N/015-25E	8,200	Fresco A,B,C	37	Ftr-Bmr
Szprotawa	51-34N/015-35E	8,200	Fresco A,B,C	37	Ftr-Bmr
Brzeg	50-50N/017-25E	8,200	Mangrove	25	Recce
			Brewer D	15	
			Fishbed H	16	
Legnica	51-11N/016-11E	4,000	Crate	5	Trspt
			Cab	10	
			Hook	15	Hcptr
			Hound	25	

Command and Control

A tactical air army probably will be established under the control of each of the five fronts to provide air defense and ground attack support.

The tactical air army is the largest operational air unit in the Warsaw Pact forces. Its composition can be tailored to specific requirements. In assembling wartime tactical air armies, the Soviets would strive to maintain a ratio of fighter interceptors to fighter bombers of three-to-two. The army would also include support elements performing primary missions of reconnaissance, bombing, and troop transports.

Units subordinate to the tactical air army are air technical divisions; fighter and fighter-bomber divisions; air technical battalions; and fighter, fighter-bomber, light bomber, reconnaissance, and transport regiments. The regiment is a basic operational unit which can operate individually from an airfield. Each regiment is supported by an air technical battalion which performs maintenance, supply, and other functions necessary to the operation of an air base.

Each tactical air army has communications facilities essential for command and control. They include those essential for coordination of air defense, support of ground forces, and communication with subordinate units and front command elements.

If the Warsaw Pact forces were put on a wartime basis it is possible the East European forces would be placed under the control of the five tactical air armies.* All operational and support activities would then be integrated. Each respective air army would

** The CIA believes that it is highly unlikely that any East European national air forces, other than specifically designated tactical air units in the Czechoslovak and Polish air forces, would be placed under the control of the tactical air armies so long as any NATO air threat existed. With the exception of the designated tactical air units, these air forces are intended for the air defense of their own national territories as part of the Soviet-controlled Warsaw Pact strategic air defense system. See page 62 for a general CIA statement on the Air Forces section.*

be assigned to a front and would operate from a network of primary and dispersal airfields.

The three tactical air armies moving from the Baltic, Belorussian, and Carpathian military districts to reinforce the three mobilized fronts would probably deploy to airfields in the frontal areas according to plan. Their present organizational integrity might be maintained, or they might be reorganized into two larger tactical air armies.

When the Soviet TAAs are in the process of deploying, their principal means of communication is radio. There is a variety of HF, VHF, and UHF single- and multichannel equipment to accomplish this.

Once the TAAs are deployed to a new location the radio communications are connected to and supplemented by land lines, microwave trucks, and other facilities of the local and national telecommunications systems. These national systems could serve as central hubs around which new communications nets would be built, as there is a commonality among communications equipment in the Warsaw Pact.

Logistics and Services

General

The Soviet chief of Rear Services, a deputy minister of defense, is responsible for the coordination and direct control of all logistic functions pertaining to the armed forces. His office has direct control of supply and service functions common to all military units and personnel, including those pertaining to food, clothing, quartermaster equipment, fuel and lubricants, and medical and veterinary services. All agencies found at the ministry level have counterpart directorates at the fronts.

Soviet military transportation represents a highly centralized, tightly controlled system under the Ministry of Defense. This control extends to front level. Tactical air armies are dependent upon this system for rail and motor transportation. Air movement is coordinated with military transport aviation (VTA) for long range lifts and with air transport units at front level for tactical lifts.

The Fuel and Lubricant Supply Directorate, under the chief of Rear Services, consolidates the

fuel and oil requirements of all types of forces, major operational commands, and other consumers within the military establishment. It accounts for and controls the distribution and storage of all fuels and lubricants.

POL in Frontal Areas

Primary movement of POL for the tactical air armies is by rail, although it can also be transported by motor vehicle or by air. Flexibility of the POL supply system was enhanced in the late Fifties by the introduction of a small-diameter mobile, tactical pipeline. This is suitable for the support of airfields and ground forces from bulk storage POL depots and railheads.

The East European countries have their own POL refineries for supplying their air forces during peacetime. In the event of hostilities, it would be necessary for them to divert additional POL from civil consumption.

Air Supplies

For supplies peculiar to the needs of the tactical air armies, the air technical divisions and air technical battalions compute their requirements and process them through their channels. A level of supply is maintained in forward area depots. Supplies from the Soviet Union are transported to these depots by the Rear Services.

The East European air forces are equipped with Soviet aircraft. Although they manufacture some aircraft parts and assemblies, they are dependent upon the Soviet Union for replacement aircraft and most spare parts.

Logistics and Service Requirements

General

The service troops and supplies which would be necessary for protracted conventional war have not

been fully identified in East Germany. Such operations would require much larger numbers of motor transport, road, bridge, and railroad maintenance units and other support than appears to be available. The other Soviet forces in Eastern Europe appear to have a lower priority for logistical support except those associated with nuclear weapons facilities. Lower levels of training and administrative activity and smaller allocations of munitions, fuel, and other expendables are evident. There appears to be only a marginal capacity in these forces to support a protracted full scale offensive.

There is probably a 5 to 7 day supply of aviation fuel at each airfield; however, each airfield in Czechoslovakia maintains a one month supply of logistics materiel on hand at all times. This is a peacetime requirement and is in addition to the mobilization storage depots which are reportedly untouchable except for mobilization. There is little evidence on what the peacetime requirements for other Pact members are, or the number of days of operation provided by the mobilization supplies.

Estimates of stockpiles of ammunition, fuel, and other essential supplies in the forward areas vary but it is believed that they are not adequate to support both the presently deployed forces and the reinforcements for an extended period of time. For resupply, there are several indicators which point to problems stemming from shortages of motor transport in the forward area.

Estimates made in this paper on logistics are based upon storage capacity. capacity of temporary storage sites is not addressed.

Nuclear associated logistics and operations are not within the scope of this paper; however, consideration should be given to the fact that only five

of the Soviet tactical air units with a nuclear delivery capability are based at airfields at which nuclear weapons storage sites are located. Three of these units (all with Fitter aircraft) are located in Eastern Europe, two in East Germany, and one in Hungary. This would present a logistics problem for nuclear capable regiments in a nuclear environment because storage facilities in the forward area do not have storage space for weapons for either additional aircraft moved to the base or aircraft at other bases. In East Germany, the two Fitter bases with nuclear weapons could not service the two neighboring Soviet Fitter bases. One additional storage site in East Germany (Briesen) has Fresco aircraft and it is likely that aircraft weapons there would be for a deployed nuclear capable regiment.

Soviet Forces in East Germany

A recent study of POL stocks for the 24th Tactical Air Army concludes that there are 34,000 mt of aviation fuel stored in on-base facilities (Table 12, p. 63) and 132,000 mt in off-base facilities (included in estimates in Table 13, pp. 64-65). These quantities would allow the 24th TAA to operate for up to 41 days, depending on the roles played by fighter aircraft. Daily POL requirements (disregarding attrition and postulating specific roles for fighter regiments) for different periods of combat are:

Initial combat (first 7-day period)--6,200 metric tons (6,800 short tons)
Initial combat (second 7-day period)--4,200 metric tons (4,600 short tons)
Sustained combat (15th to 90th day)--3,200 metric tons (3,500 short tons)

Estimates of aviation munitions are 18,500 metric tons (20,400 short tons) on air bases and 20,600 metric tons (22,700 short tons) at depots, making a total of 39,100 mt (43,100 short tons). This quantity equates to 73 days of operation at the following daily consumption rates:

Initial combat (first 7-day period)--890 metric tons (980 short tons)
Initial combat (second 7-day period)--600 metric tons (660 short tons)
Sustained combat (15th to 90th day)--480 metric tons (530 short tons)

The above POL and arms requirements for the 24th TAA were derived for combat aircraft only, by postulating a mix of combat roles for the various fighter regiments.

The availability of aircraft spare parts cannot be estimated. It is known that the Soviets have stocks of spare parts which are specifically held in reserve for wartime use only. How large these stock levels are or how long these stocks would last is not known.

Soviet and National Air Forces in East Germany, Poland, and Czechoslovakia

The capacity of POL refinery production in East Germany, Poland, and Czechoslovakia and resupply via CEMA pipelines from the Soviet Union are presented in Table 14 (pp. 66-67).

The estimated POL and ammunition combat requirements (including transport and helicopter) for the Soviet and national air forces in East Germany, Poland, and Czechoslovakia are presented in Table 15 (pp. 68-69). The three sets of figures represent requirements with (1) fighter aircraft employed in a long intercept role, (2) fighter aircraft employed in a short intercept role, and (3) fighter aircraft employed in a ground attack role. These requirements consider availability, serviceability, and abort rates

Logistic Requirements for Reinforcement Forces

Daily logistic requirements for the 1st, 30th, and 57th Tactical Air Armies from the western USSR have been postulated on the assumption that they will operate

in a similar manner and with the same intensity as the 24th TAA after they have deployed to the forward areas (Table 16, pp. 70-72). The estimates assume full operational status and full participation of the TAAs with the initiation of hostilities.

Daily POL requirements are estimated as follows:

Initial combat
(first 7-day period)--8,950-11,090 metric tons
(9,850-12,200 short tons)
Initial combat
(second 7-day period)--4,930-6,470 metric tons
(5,420-7,110 short tons)
Sustained combat
(15th to 90th day)--3,990-4,960 metric tons
(4,390-5,440 short tons)

Daily munitions requirements are estimated as follows:

Initial combat
(first 7-day period)--1,110-1,900 metric tons
(1,220-2,100 short tons)
Initial combat
(second 7-day period)--734-1,260 metric tons
(810-1,390 short tons)
Sustained combat
(15th to 90th day)--590-1,050 metric tons
(650-1,160 short tons)

* * * * *

Note: The CIA believes that this section on Air Forces (pages 35-72) conveys a sense of confidence in the level of specific detail presented on TOE, peacetime personnel and equipment status, and logistics capabilities which may not be supported by the information available or by accomplished research and analysis. Therefore, the CIA is unable to judge the validity of this section as an expression of Warsaw Pact capabilities for tactical air support. However, when used only as a base for calculating the movement requirements for reinforcement, the data probably are adequate and should not invalidate the general conclusions of the study.

* * * * *

(Next section begins on page 73 following Tables 12-16.)

Table 12

Soviet Airfield POL Storage in East Germany

Operational airfields	Estimated capacity (metric tons)
Allstedt	867
Alt Lonnewitz	1,000
Altenburg	789
Brandis	1,577
Briesen	2,498
Finow	1,262
Finsterwalde	1,300
Gross Dolln	505
Grossenhain	912
Juterbog	899
Kochstedt	1,577
Kothen	1,247
Kummersdorf	4,000
Mahlwinkel	883
Merseburg	1,000
Neuruppin	946
Oranienburg	4,732
Parchim	1,703
Putnitz	1,577
Rechlin/Larz	1,776
Stendal	1,475
Welzow	978
Werneuchen	3,155
Wittstock	1,893
Zerbst	2,779
Total	41,330
Deployment airfields	
Reinsdorf	800
Retzow	500
Schlotheim	233
Total	1,533
Total capacity	42,863
Estimated POL stocks (80% of total capacity)	34,290

Table 13

Off-Base POL Storage in East Germany

Storage location	Estimated capacity (metric tons)
Allstedt	4,800
Altfriesach	1,546
Berlin-Adlershof	9,000
Berlin-Lichtenberg	3,000
Berlin-Rummelsburg	5,720
Bernsdorf (Soviet)	53,320
Biesenthal (Soviet)	5,680
Dresden-Alberthafen	12,320
Dresden-Rodebul	600
Eggesin (E. German army)	1,000
Eisenach 1 (Soviet)	880
Eisenach 2	1,760
Erfurt	1,040
Furstenburg 1 (Soviet)	1,466
Furstenberg 2	440
Furstenwalde	920
Gross Dolln	11,200
Gusen (Soviet)	1,360
Gustrow	1,960
Halle-Dolau (E. German army)	1,520
Halle South	920
Halle-Tratha	400
Hillersleben	1,640
Hohensaaten 1	4,520
Hohensaaten 2	3,013
Hohnichen	2,413
Hohnichen-Roghenburg	426
Kablow	37,533
Karl Marx Stadt	1,800
Karl Marx Stadt-Hartmannsdorf	10,400
Klein Bahren 1 (Soviet)	14,880
Klein Bahren 2 (Soviet)	1,893
Kummersdorf (Soviet)	1,600
Magdeburg 1 (Soviet)	7,520
Magdeburg 2	1,040
Magdeburg 3	400
Magdeburg 4	3,320

Table 13 (continued)

Off-Base POL Storage in East Germany

Storage location	Estimated capacity (metric tons)
Medewitz	3,966
Mixdorf (Soviet)	3,946
Munchenbernsdorf (Soviet)	8,120
Neustrelitz (Soviet)	2,240
Niederlehme (E. German air force)	2,773
Oranienburg (E. German army)	1,000
Perleberg 1 (Soviet)	4,200
Perleberg 2	1,360
Perleberg 3 (Soviet)	4,200
Riesa 1 (Soviet)	8,400
Riesa 2	4,200
Riesa West	1,200
Rochau	1,960
Rosslau	3,320
Rostock	4,000
Sassnitz	920
Schleife 1 (Soviet)	1,333
Schleife 2	4,000
Schlieben (E. German army)	1,440
Schwedenberg-Heinersdorf	15,000
Stassfurt	2,826
Thurow (E. German army)	1,360
Torgau 1	4,000
Torgau 2	2,000
Velten South 1	12,000
Velten South 2	6,000
Velten South 3 (Soviet)	5,400
Warnemunde (Naval)	520
Warnemunde (Shipyard)	1,000
Weissensee	640
Werder	4,400
Wusterhausen	533
Zertow 1	18,400
Zertow 2	9,200
Total capacity	359,107
Estimated POL stocks (80% of total capacity)	287,285

Table 14

East European In-Country Supply Capability

Refinery Production

Refinery	Capacity as of 1 Jan 71 (in thousand metric tons per year)
East Germany	
Bochlen	1,300
Leuna	2,000
Lutzkendorf	800
Schwarzheide	400
Schwedt	6,700
Zeitz/Troglitz	500
Others (Espenhain and Rositz)	300
Total	12,000
Poland	
Chrzanow	300
Czechowice	600
Gorlice	150
Jaslo	150
Jedlicze	200
Plock	6,000
Total	7,400
Czechoslovakia	
Bratislava	7,200
Dubova	100
Kolin	200
Pardubice	300
Zaluzi	1,800
Total	9,600
Total refinery capacity	29,000

Table 14
(continued)

East European In-Country Supply Capability

Alternative Supply via CEMA Pipelines From USSR*

Pipeline	Capacity (metric tons per day)
Czechoslovakia	
CEMA I	46,667
CEMA II	22,667
East Germany	
CEMA I	22,667**
Poland	
CEMA I	10,667**

** The CEMA pipeline now carries crude oil to refineries in Eastern Europe. Use of the line to supply products would require a changeover period of some three to four weeks and would deny a corresponding volume of crude oil supply to East European refineries.*

*** These figures assume that the extension of the CEMA pipeline into East Germany is operational. If the pipeline is not operational into East Germany, Poland would receive the total of 33,334 mt per day.*

Table 15

Daily POL and Ammunition Requirements for Soviet and National Air Forces in East Germany, Poland, and Czechoslovakia

Country/Force	POL (short tons)			Ammunition (short tons)		
	Initial combat		Sustained combat after 14 days	Initial combat		Sustained combat after 14 days
	1st 7 days	7-14 days		1st 7 days	7-14 days	
East Germany						
Soviet Air Force						
long intercept	7152.2	4755.8	3625.8	576.2	380.4	290.4
short intercept	9621.3	6439.6	4948.2	759.8	505.2	395.2
ground attack	6937.2	4453.8	3768.4	1336.6	861.8	744.7
National air force						
long intercept	2210.7	1486.3	1043.3	168.8	110.6	79.1
short intercept	3176.0	2154.1	1561.5	247.8	164.4	123.9
ground attack	2280.8	1416.5	1253.0	572.4	355.9	321.1
Poland						
Soviet Air Force						
long intercept	2877.4	1894.9	1412.6	166.6	109.8	81.8
short intercept	3743.8	2487.5	1876.6	228.1	148.6	116.3
ground attack	2851.5	1817.9	1504.5	515.0	333.4	286.9
National air force (includes naval air)						
long intercept	5699.9	3768.5	2807.0	526.7	343.8	261.3
short intercept	7867.7	5260.7	3967.4	669.9	442.4	340.8
ground attack	4894.2	3177.9	2702.3	1812.3	1214.6	1002.0

Table 15

Daily POL and Ammunition Requirements for Soviet and National Air Forces in East Germany, Poland, and Czechoslovakia

Country/Force	POL (short tons)			Ammunition (short tons)		
	Initial combat		Sustained combat after 14 days	Initial combat		Sustained combat after 14 days
	1st 7 days	7-14 days		1st 7 days	7-14 days	
Czechoslovakia						
Soviet Air Force						
long intercept	706.6	482.2	335.3	43.2	34.8	24.7
short intercept	1008.1	691.0	497.3	78.4	51.9	39.1
ground attack	775.9	482.2	428.0	164.8	98.7	93.1
National air force						
long intercept	4535.2	3071.4	2262.4	416.0	278.2	212.6
short intercept	6412.0	4353.2	3266.6	563.1	378.7	294.2
ground attack	4220.6	2791.8	2309.6	1135.1	763.2	632.9

Note: The three figures given for each requirement are alternatives reflecting the roles in which the aircraft may be employed--long or short intercept or ground attack.

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Table 16

Daily Logistic Requirements of the
1st, 30th, and 57th Soviet Tactical Air Armies
For First Seven Days of Initial Combat

Short tons

Type/number of aircraft	POL	Ammo	Tech supply	Common use supply	Total	Sorties per day
Fresco/240						
long intercept	1,216.8	64.8	14.4	38.4	1,334.4	648
short intercept	1,809.6	96.0	26.4	43.2	1,975.2	960
ground attack	784.8	525.6	19.2	38.4	1,368.0	720
Farmer/50						
long intercept	388.0	55.5	3.0	8.0	454.5	135
short intercept	577.0	82.0	5.5	9.0	673.5	200
ground attack	264.5	105.5	4.0	8.0	382.0	150
Fishbed/220						
long intercept	1,529.0	127.6	13.2	35.2	1,705.0	594
short intercept	2,266.0	189.2	24.2	39.6	2,519.0	880
ground attack	1,698.4	400.4	17.6	35.2	2,151.6	660
Fitter/70						
long intercept	903.7	56.0	5.6	11.2	976.5	210
short intercept	1,355.2	84.0	9.1	12.6	1,460.9	245
ground attack	903.7	148.4	5.6	11.2	1,068.9	210
Mangrove/30	237.6	3.0	5.4	9.0	255.0	72
Beagle/70	1,137.5	227.5	12.6	21.0	1,398.6	175
Brewer/130	1,716.0	669.5	23.4	39.0	2,447.9	390
Brewer D/20	1,716.0	0	23.4	39.0	1,778.4	60
Camp/10	49.7	0	1.7	3.8	55.2	7
Cab/30	54.3	0	4.2	5.4	63.9	24
Crate/30	61.2	0	4.5	5.4	71.1	24
Hook/60	998.4	5.4	13.2	18.0	1,035.9	156
Hound/100	224.0	10.0	8.0	24.0	256.0	320
Alternative totals						
long intercept	10,232.2	1,219.3	132.6	257.4	11,832.4	
short intercept	12,202.5	1,366.6	161.6	269.0	13,990.6	
ground attack	9,846.1	2,095.3	142.8	257.4	12,332.5	

Note: Requirement estimates assume 90 percent availability of aircraft, varying serviceability, and 5 percent ground abort.

Table 16 (continued)

Daily Logistic Requirements of the
1st, 30th, and 57th Soviet Tactical Air Armies
For Second Seven Days of Initial Combat

Short tons

Type/number of aircraft	POL	Ammo	Tech supply	Common use supply	Total	Sorties per day
Fresco/240						
long intercept	813.6	43.2	14.4	36.0	907.2	432
short intercept	1,221.6	64.8	24.0	40.8	1,351.2	648
ground attack	549.6	367.2	16.8	36.0	969.6	504
Farmer/50						
long intercept	259.5	37.0	2.5	7.5	306.5	90
short intercept	389.5	55.5	5.0	8.5	458.5	135
ground attack	185.5	74.0	3.5	7.5	270.5	105
Fishbed/220						
long intercept	1,018.6	83.6	11.0	33.0	1,146.2	396
short intercept	1,529.0	125.4	22.0	37.4	1,713.8	594
ground attack	1,018.6	239.8	15.4	33.0	1,306.8	462
Fitter/70						
long intercept	632.8	39.2	1.4	10.5	683.9	147
short intercept	933.8	58.1	8.4	11.9	1,012.2	217
ground attack	632.8	103.6	1.4	10.5	748.3	147
Mangrove/30	148.5	1.8	5.1	8.7	164.1	45
Beagle/70	702.8	145.6	11.9	20.3	880.6	112
Brewer/130	1,144.0	448.5	22.1	37.7	1,652.3	260
Brewer D/20	176.0	0	3.4	5.8	254.2	40
Camp/10	42.6	0	1.6	3.7	47.9	6
Cab/30	40.8	0	3.9	5.1	49.8	18
Crate/30	45.9	0	4.2	5.1	55.2	18
Hook/60	576.0	3.0	10.8	17.4	607.2	90
Hound/100	161.0	6.0	5.0	22.0	189.0	230
Alternative totals						
long intercept	5,762.1	807.9	97.3	212.8	6,944.1	
short intercept	7,111.5	908.7	127.4	224.4	8,436.0	
ground attack	5,424.1	1,389.5	105.1	212.8	7,195.5	

Note: Requirement estimates assume 80 percent availability of aircraft varying serviceability, and 5 percent ground abort.

Table 16 (continued)

Daily Logistic Requirements of the
1st, 30th, and 57th Soviet Tactical Air Armies
For Sustained Combat After Fourteen Days

Short tons

Type/number of aircraft	POL	Ammo	Tech supply	Common use supply	Total	Sorties per day
Fresco/240						
long intercept	588.0	31.2	12.0	33.6	664.8	312
short intercept	904.8	48.0	24.0	38.4	1,015.2	480
ground attack	444.0	292.8	16.8	33.6	787.2	408
Farmer/50						
long intercept	187.5	26.5	2.5	7.0	223.5	65
short intercept	288.5	41.0	5.0	8.0	342.5	100
ground attack	180.0	52.0	3.5	8.0	243.5	85
Fishbed/220						
long intercept	737.0	59.4	11.0	30.8	838.2	286
short intercept	1,133.0	94.6	22.0	35.2	1,284.8	440
ground attack	963.6	226.6	15.4	30.8	1,236.4	374
Fitter/70						
long intercept	512.4	31.5	1.4	9.8	555.1	139
short intercept	753.2	46.9	8.4	11.2	819.7	175
ground attack	512.4	84.0	1.4	9.8	607.6	139
Mangrove/30	108.9	1.5	5.1	8.4	123.9	33
Beagle/70	591.5	118.3	11.9	19.6	741.3	91
Brewer/130	972.4	379.6	22.1	36.4	1,410.5	221
Brewer D/20	149.6	0	3.4	5.6	158.6	34
Camp/10	21.3	0	1.6	3.6	26.5	3
Cab/30	20.4	0	3.9	4.8	29.1	9
Crate/30	23.1	0	4.2	4.8	32.1	9
Hook/60	384.0	0	9.0	16.8	409.8	60
Hound/100	91.0	4.0	5.0	21.0	121.0	130
Alternative totals						
long intercept	4,387.1	652.0	93.1	202.2	5,334.4	
short intercept	5,441.7	733.9	125.6	213.8	6,515.0	
ground attack	4,462.2	1,158.8	103.3	203.2	5,927.5	

Note: Requirement estimates assume 70 percent availability of aircraft, varying serviceability, and 5 percent ground abort.

Model for Movement of Warsaw Pact Reinforcements

Analysis of the capabilities of the Warsaw Pact nations to reinforce the Central Region required the accumulation of large amounts of data on the military forces and on the capabilities to transport these forces to the forward areas. This section discusses the factors which would govern the movement of forces into Eastern Europe and, in the three tables at the end of the section, presents some results of the movement study.*

Rail would be the primary means of transportation for the forces moving into the forward areas. The reinforcement analysis was concentrated on the rail systems in the western USSR, Poland, Czechoslovakia, and East Germany. Road movement was also studied but not to the same extent as rail movement.

Table 19 (beginning on page 84) summarizes the data used to evaluate rail movement of ground forces units as well as ground support equipment and

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* *The separate Annex to this report, containing additional data used in the mobilization and movement calculations, supplements this section of the report and the ground forces section beginning on page 7. The annex includes:*

- -- *The order of battle used in movement computations and in estimates of unit readiness and closing times.*
- -- *Graphic presentation of estimated military utilization of rail and road facilities for movement.*
- -- *Tabular estimates of the rail utilization and movement factors for each unit involved in the movement estimates.*

personnel of tactical air army (TAA) regiments. Analysis of these data indicates that virtually all of the rail lines selected for this study have sufficient capacity to meet the requirements for reinforcement in the Central Region. The sustained capacities of only 9 of the 140 rail sectors listed would be exceeded by the requirements of the ground and tactical air units. The requirements imposed on two other sectors approach the sustained capacities of these segments.

Most of the rail segments which might cause delays during the movement are located in the forward areas. The rail sectors in western Czechoslovakia and to a lesser extent those in East Germany are subject to congestion. Thus, some ground forces units of the Soviet groups of forces in Czechoslovakia and East Germany, the Warsaw army, the Pomeranian army, and the Silesian army, or Soviet TAA personnel and equipment might be delayed in reaching forward positions in Czechoslovakia and East Germany.

Relatively few units would be affected by these potential choke points. Moreover, it appears that these units probably would not be delayed for an extended period of time. Use of extraordinary rail operating procedures for short periods of time could ease or eliminate the apparent constraints imposed by limited sustained capacities of some railroad sectors. Consideration of all known factors governing the mobilization and movement of the ground and air forces indicates that the Soviet Union and its allies would complete deployment of all units to their forward positions by M + 20.

(Text resumes on page 98 following Tables 17-19.)

Table 17

Road Movement of Ground Forces for Warsaw Pact Reinforcement

Unit	Origin	Destination	Distance (km)
	Warsaw Army (Polish)		
Army Hq	Warsaw	Jagerbruck (East Germany)	544
1st Mech Div	Rembertow	Jagerbruck	568
2nd Mech Div	Nysa	Jagerbruck	547
15th Mech Div	Olsztyn	Jagerbruck	525
Arty Bde	Wegorzewo	Jagerbruck	642
Scud Bde	Orzysz	Jagerbruck	646
AAA Regt	Warsaw	Jagerbruck	544
Engr Regt	Kazun	Jagerbruck	512
Pon Br Regt	Deblin	Jagerbruck	697
Signal Regt	Zegrze	Jagerbruck	546
Chem Bn	Biskupiec	Jagerbruck	585
Mech Regt	Warsaw	Jagerbruck	544
AT Regt	Kwidzyn	Jagerbruck	450
	Pomeranian Army (Polish and East German)		
Army Hq	Bydgoszcz	Neubrandenburg (East Germany)	353
12th Mech Div	Szczecin	Neubrandenburg	112
20th Tank Div	Szczechinek	Neubrandenburg	273
1st MRD (EG)	Potsdam	Neubrandenburg	219
9th Tank Div (EG)	Eggesin	Neubrandenburg	81
Arty Bde (Pol)	Grudziadz	Neubrandenburg	420
Scud Bde (Pol)	Choszczno	Neubrandenburg	168
AAA Regt (Pol)	Szczecin	Neubrandenburg	112
Engr Regt (EG)	Storkow	Neubrandenburg	235
Pon Br Regt (Pol)	Chelmno	Neubrandenburg	396
AT Regt (Pol)	Gniezno	Neubrandenburg	438
Asslt Crossing Bn	Dziwnow	Neubrandenburg	200
Signal Regt (Pol)	Bydgoszcz	Neubrandenburg	353
Chem Bn (EG)	Pasewalk	Neubrandenburg	57
Mech Regt (Pol)	Chelmno	Neubrandenburg	396
Arty Instr Recce Regt	Chelmno	Neubrandenburg	396

Table 17 (continued)

Road Movement of Ground Forces
for Warsaw Pact Reinforcement

Unit	Origin	Destination	Distance (km)
Northern Front (Polish and East German)			
Front Hq (Pol)	Warsaw	Drawsko (Poland)	439
Scud Bde (EG)	Torgelow	Neubrandenburg	45
Scud Bde (Pol)	Poznan	Drawsko	212
AAA Regt (Pol)	Brzeg	Drawsko	430
AAA Regt (Pol)	Bydgoszcz	Drawsko	180
Chem Regt (Pol)	Grudziodz	Drawsko	247
Signal Regt (Pol)	Sieradz	Gustrow (East Germany)	653
ECM Bn (Pol)	Gizycko	Gustrow	758
Mech Regt (Pol)	Warsaw	Drawsko	439
Recce Bn (Pol)	Dziwnow	Gustrow	285
Rear Svs (Pol)	Warsaw	Drawsko	439
Silesian Army (Polish)			
Army Hq	Wroclaw	Wittenberge (East Germany)	562
4th Mech Div	Krosno	Wittenberge	304
5th Tank Div	Gubin	Wittenberge	353
10th Tank Div	Opole	Wittenberge	645
11th Tank Div	Zagan	Wittenberge	347
Arty Bde	Glogow	Wittenberge	407
Scud Bde	Boleslawiec	Wittenberge	429
AAA Regt	Leszno	Wittenberge	460
Pon Br Regt	Gorzow	Wittenberge	295
Chem Bn	Zgorzelec	Wittenberge	465
Signal Regt	Wroclaw	Wittenberge	562
AT Regt	Pleszew	Wittenberge	586
Mech Regt	Gorzow	Wittenberge	295

Table 17 (continued)

Road Movement of Ground Forces
for Warsaw Pact Reinforcement

Unit	Origin	Destination	Distance (km)
	2nd Guards Army (GSFG)		
Arty Bde	Potsdam	Schwerin (East Germany)	197
	Central Front		
20th Tank Div (NGF)	Swietoszow (Poland)	Juterbog (East Germany)	203
	Southern Front		
Arty Regt (CGF)	Jesenik	Jince/Strasice (Czechoslovakia)	385
Scud Bde (Czech)	Hranice	Jince/Strasice	384
Signal Regt (Czech)	Prague	Jince/Strasice	75
AAA Bde (Czech)	Brno	Jince/Strasice	250
Pipeline Bde (Czech)	Roudnice	Jince/Strasice	162
AT Regt (Czech)	Topolcany	Jince/Strasice	483
Pon Br Regt (Czech)	Sered	Jince/Strasice	422
Signal Regt (Czech)	Kolin	Jince/Strasice	154
SAM Regt (CGF)	Cervena Vodo	Jince/Strasice	321
Signal Intercept Regt (Czech)	Trencin	Hradec Kralove (Czechoslovakia)	281

Table 17 (continued)

Road Movement of Ground Forces
for Warsaw Pact Reinforcement

Unit	Origin	Destination	Distance (km)
Unidentified Army of the Central Group of Forces (Czechoslovakia)			
Army Hq	Olomouc	Doupov	374
Pon Br Regt (Czech)	Pohorelice	Doupov	413
Signal Regt (Czech)	Lipnik	Doupov	343
Signal Intercept Regt (Czech)	Zbiroh	Doupov	185
Arty Bde	Olomouc	Doupov	374
Scud Bde	Olomouc	Doupov	374
SAM Regt	Olomouc	Doupov	374
Arty Instr Recce Regt	Olomouc	Doupov	374
Engr Regt	Olomouc	Doupov	374
Asslt Crossing Bn	Olomouc	Doupov	374
Chem Def Bn	Olomouc	Doupov	374
Line Constr Bn	Olomouc	Doupov	374
Long Range Recce Co	Olomouc	Doupov	374
EW Bn	Olomouc	Doupov	374
Intel Element	Olomouc	Doupov	374
4th Army (Czechoslovak)			
3rd Mtz R Div	Kromeriz	Boletice	312
11th Army (Baltic MD)			
1st Gds Mtz R Div	Kaliningrad	Stargard Szczecinski (Poland)	460

Table 17 (continued)

Road Movement of Ground Forces
for Warsaw Pact Reinforcement

Unit	Origin	Destination	Distance (km)
	11th Army (continued)		
26th Gds Mtz R Div	Gusev	Miedzyrzecz	550
	5th Guards Tank Army (Belorussian MD)		
22nd Tank Div	Bobruysk	Ruszow	1,100
	28th Army (Belorussian MD)		
8th Tank Div	Slonim	Luban	900
	13th Army (Carpathian MD)		
97th Gds Mtz R Div	Slavuta	Jevicko	1,180

Table 18

Rail Movement of Ground Support Equipment and Personnel of Tactical Air Armies in Western USSR Military Districts for Warsaw Pact Reinforcement

Unit	Origin	Destination	Distance (km)	Time (hrs)	Airfield Destination	Distance (km)	Travel time (hrs)	When in Place
1st Tactical Air Army (Belorussian Military District)								
Ftr Regt	Shchuchin	Dresden area	1,003	36	Zerbst	198	4.7	M+3
Ftr Regt	Ross'	Dresden area	962	35	Altenberg	157	3.7	M+2
Ftr Regt	Bereza	Dresden area	947	35	Merseburg	148	3.5	M+2
Ftr Regt	Lida	Dresden area	1,054	37	Finsterwalde	110	2.5	M+3
Ftr Regt	Postavy	Dresden area	1,367	45	Alt Lonnewitz	120	3	M+3
Ftr Regt	Bobrovichi	Dresden area	1,270	43	Grossenhain	38	1	M+3
Recce Regt	Shchuchin	Dresden area	1,003	36	Welzow	100	2.4	M+2
Hel Regt	Kobrin	Dresden area	894	33	Brandis	108	2.6	M+2

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Table 18
(continued)

Rail Movement of Ground Support Equipment and Personnel of Tactical Air Armies in Western USSR Military Districts for Warsaw Pact Reinforcement

Unit	Origin	Destination	Distance (km)	Time (hrs)	Airfield Destination	Distance (km)	Travel time (hrs)	When in Place
			30th Tactical Air Army (Baltic Military District)					
Ftr Regt	Siauliai (Shyaulyay)	Berlin area	912	34	Gross Dolln	95	2.3	M+2
Ftr Regt	Riga/ Rumbula	Berlin area	1,046	37	Juterbog	79	2	M+2
Ftr Regt	Vasalemma	Berlin area	1,514	49	Rechlin/Larz	148	3.3	M+2
Bmr Regt	Chernya-khovsk	Berlin area	698	21	Finow	51	1.2	M+2
Bmr Regt	Chernya-khovsk	Berlin area	698	21	Stendal	130	3.1	M+2
Bmr Regt	Tukums	Berlin area	1,059	37	Parchim	212	5	M+3
Recce Regt	Krustpils	Berlin area	1,177	40	Stendal	130	3.1	M+3
Hel Regt	Kaunas	Berlin area	821	31	Mahlwinkel	154	3.7	M+2
Hel Unit	Kaliningrad	Berlin area	620	19	Neuruppin	95	2.3	M+2

Table 18
(continued)

Rail Movement of Ground Support Equipment and Personnel of Tactical Air Armies in Western USSR Military Districts for Warsaw Pact Reinforcement

Unit	Origin	Destination	Distance (km)	Time (hrs)	Airfield Destination	Distance (km)	Travel time (hrs)	When in Place
57th Tactical Air Army (Carpathian Military District)								
Ftr Regt	Staro-Konstantinov	Berlin area	1,364	45	Zerbst	147	3.5	M+3
Bmr Regt	Staro-Konstantinov	Berlin area	1,364	45	Finow	51	1.1	M+3
Ftr Regt	Lutsk North	Berlin area	1,157	40	Briesen	60	1.4	M+3
Bmr Regt	Gorodok	Berlin area	966	35	Stendal	130	3.1	M+2
Recce Regt	Kolomyya	Berlin area	1,281	43	Werneuchen	40	1	M+3
Hel Regt	Brody North	Berlin area	1,093	38	Kummersdorf	57	1.3	M+2
Ftr Regt	Mukachevo	Prague area	833	25	Mimon	161	4	M+2
Ftr Regt	Dubno Northeast	Prague area	1,036	37	Zatec	200	5	M+3

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Table 18
(continued)

Rail Movement of Ground Support Equipment and Personnel of Tactical Air Armies in Western USSR Military Districts for Warsaw Pact Reinforcement

Unit	Origin	Destination	Distance (km)	Time (hrs)	Airfield Destination	Distance (km)	Travel time (hrs)	When in Place
57th Tactical Air Army (Carpathian Military District) (continued)								
Ftr Regt	Chortkov	Prague area	1,171	40	Milovice	40	1	M+3
Recce Sq	Chortkov	Prague area	1,171	40	Milovice	40	1	M+3
Ftr Sq	Ivano-Frankovsk	Prague area	1,091	38	Ceske Budejovice	167	4	M+3
Hel Regt	Sambor	Prague area	815	24	Milovice	40	1	M+2

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Table 19

Capabilities and Requirements of Rail Systems for Warsaw Pact Reinforcement

Sector Number	Origin	Destination	Distance (km)	Capacity (trains per day)	No. of trains using sector	No. of days sector used*	Daily average (trains per day)
		11th Army, Baltic Military District					
1	Kaliningrad	Braniewo	56	80	294	18	16
2	Braniewo	Elblag	44	20	66	9	7
3	Braniewo	Elblag (alternate route)	55	22	90	7	13
4	Elblag	Tczew	48	67	204	9	23
5	Tczew	Bydgoszcz	128	80	111	8	14
6	Tczew	Stargard Szczecinski	301	18	45	3	15
7	Stargard Szczecinski	Chojna	70	18	45	3	15
8	Dobele	Sovetsk	322	17	43	7	6
8a	Sovetsk	Chernyakhovsk	54	17	74	12	6
9	Gusev	Chernyakhovsk	25	36	36	3	12
10	Chernyakhovsk	Torun	297	17	172	16	11

** Number of days (not necessarily consecutive) rail sector may be used during reinforcement.*

Table 19 (continued)

Capabilities and Requirements of Rail Systems for Warsaw Pact Reinforcement

Sector Number	Origin	Destination	Distance (km)	Capacity (trains per day)	No. of trains using sector	No. of days sector used*	Daily average (trains per day)
		11th Army, Baltic Military District (continued)					
11	Torun	Bydgoszcz	49	56	45	4	11
12	Torun	Inowroclaw	35	61	133	12	11
13	Inowroclaw	Bydgoszcz	46	80	--	--	--
14	Bydgoszcz	Krzyz	145	56	156	9	17
15	Krzyz	Gorzow Wielkopolski	60	56	65	8	8
16	Gorzow Wielkopolski	Kostrzyn	43	56	45	4	11
17	Inowroclaw	Poznan	107	61	127	12	11
18	Poznan	Zbaszynek	81	56	221	17	13
19	Zbaszynek	Miedzyrzecz	30	27	93	9	10
20	Miedzyrzecz	Sulecin	36	27	45	5	9
21	Zbaszynek	Swiebodzin	22	56	113	8	14

* See footnote on page 84.

Table 19 (continued)

Capabilities and Requirements of Rail Systems for Warsaw Pact Reinforcement

Sector Number	Origin	Destination	Distance (km)	Capacity (trains per day)	No. of trains using sector	No. of days sector used*	Daily average (trains per day)
		11th Army, Baltic Military District (continued)					
22	Zbaszynek	Sulechow	27	29	15	2	8
		Belorussian Military District					
23	Polotsk	Grodno	458	17	31	5	6
24	Grodno	Warsaw	258	24	134	9	15
25	Warsaw	Skierniewice	64	80	531	11	28
26	Skierniewice	Poznan	246	80	88	7	13
27	Lepel	Borisov	265	17	31	6	5
28	Borisov	Minsk	79	58	154	10	15
29	Pukhovichi (Marina Gorka)	Minsk	62	58	31	7	4
30	Minsk	Baranovichi	148	80	387	10	5

* See footnote on page 84.

Table 19 (continued)

Capabilities and Requirements of Rail Systems for Warsaw Pact Reinforcement

Sector Number	Origin	Destination	Distance (km)	Capacity (trains per day)	No. of trains using sector	No. of days sector used*	Daily average (trains per day)
		Belorussian Military District (continued)					
31**	Baranovichi	Warsaw	311	16	Sov 244 or EE 357	8	Sov 13 or EE 19
32	Bobruysk	Osipovichi	42	80	63	10	6
33	Osipovichi	Slutsk	99	80	72	12	6
34	Slutsk	Baranovichi	109	17	103	12	9
35	Baranovichi	Brest	202	80	246	13	19
36	Brest	Skierniewice	250	48	426	15	28
37	Skierniewice	Ostrow Wielkopolski	213	61	809	11	40
38	Ostrow Wielkopolski	Leszno	99	56	619	10	33

* *See footnote on page 84.*

** *This sector is a potential choke point during reinforcement because unit movement over the sector would virtually equal or exceed its sustained capacity. Extraordinary operating procedures could eliminate the choke point.*

Table 19 (continued)

Capabilities and Requirements of Rail Systems for Warsaw Pact Reinforcement

Sector Number	Origin	Destination	Distance (km)	Capacity (trains per day)	No. of trains using sector	No. of days sector used*	Daily average (trains per day)
		Belorussian Military District (continued)					
39	Leszno	Glogow	45	56	376	3	29
40**	Glogow	Nowa Sol	31	19	167	8	21
41	Nowa Sol	Zielona Gora	54	19	90	6	15
42	Zielona Gora	Krosno Odrzanskie	36	19	45	6	8
43	Glogow	Zagan	60	24	209	10	21
44	Zagan	Lubsko	39	15	90	10	9
45	Lubsko	Gubin	21	27	45	10	5
46	Zagan	Tuplice	34	48	60	9	7
47	Ostrow Wielkopolski	Wroclaw	98	25	185	11	21
48	Wroclaw	Chojnow	84	80	144	9	16

* *See footnote on page 84.*
** *See footnote on page 87.*

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Table 19 (continued)

Capabilities and Requirements of Rail Systems for Warsaw Pact Reinforcement

Sector Number	Origin	Destination	Distance (km)	Capacity (trains per day)	No. of trains using sector	No. of days sector used*	Daily average (trains per day)
		Belorussian Military District (continued)					
49	Chojnow	Boleslawiec	28	61	61	9	7
50	Boleslawiec	Wegliniec	25	61	--	--	--
51	Wegliniec	Zagan	45	19	45	4	11
52	Wroclaw	Jelenia Gora	126	80	96	4	24
53	Jelenia Gora	Zgorzelec	78	67	48	2	24
		Carpathian Military District					
54	Ovruch	Novograd Volynskiy	133	20	31	4	8
55	Novograd Volynskiy	Slavuta	63	15	62	5	12
56	Zhitomir	Berdichev	50	15	65	8	8
57	Berdichev	Slavuta	121	72	100	10	10

* See footnote on page 84.

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Table 19 (continued)

Capabilities and Requirements of Rail Systems for Warsaw Pact Reinforcement

Sector Number	Origin	Destination	Distance (km)	Capacity (trains per day)	No. of trains using sector	No. of days sector used*	Daily average (trains per day)
		Carpathian Military District (continued)					
58	Slavuta	Zdolbunov	73	80	164	10	16
59	Zdolbunov	Rovno	12	15	71	9	8
60	Zdolbunov	L'vov	195	80	234	12	20
61	L'vov	Munina	131	80	Sov 254 or EE 610	11	Sov 18 or EE 42
62	Vladimir Volynskiy	Munina	194	20	31	4	8
63	Munina	Katowice	292	80	673	11	37
64	Katowice	Nachod	224	24	77	5	15
65	Katowice	Hranice	80	80	581	18	41
66	Hranice	Prerov	28	80	767	18	43
67	Prerov	Vyskov	43	20	--	--	--

* See footnote on page 84.

Table 19 (continued)

Capabilities and Requirements of Rail Systems for Warsaw Pact Reinforcement

Sector Number	Origin	Destination	Distance (km)	Capacity (trains per day)	No. of trains using sector	No. of days sector used*	Daily average (trains per day)
		Carpathian Military District (continued)					
68	Prerov	Olomouc	22	80	693	18	43
69	Olomouc	Prostejov	21	30	16	2	8
70	Olomouc	Ceska Trebova	110	80	388	11	35
71	Ceska Trebova	Svitavy	17	80	16	3	5
72	Ceska Trebova	Jevicko	42	25	48	6	8
73	Jevicko	Boskovice	22	25	48	6	8
74	Ceska Trebova	Chocen	25	80	247	6	41
75	Chocen	Hradec Kralove	45	50	61	4	15
76	Hradec Kralove	Dvur Kralove	32	33	16	4	4
77	Chocen	Vysoke Myto	9	25	48	4	12
78**	Chocen	Chrudim	49	25	48	2	24

* *See footnote on page 84.*
** *See footnote on page 87.*

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Table 19 (continued)

Capabilities and Requirements of Rail Systems for Warsaw Pact Reinforcement

Sector Number	Origin	Destination	Distance (km)	Capacity (trains per day)	No. of trains using sector	No. of days sector used*	Daily average (trains per day)
		Carpathian Military District (continued)					
79	Chocen	Pardubice	35	80	90	5	18
80	Pardubice	Turnov	127	33	45	4	11
81	Khmel'nitskiy	Stryy	284	16	--	--	--
82	Ivano-Frankovsk	Stryy	108	17	156	18	9
83	Chernovtsy	Ivano-Frankovsk	126	17	62	11	6
84	Stryy	Chop	191	28	170	18	9
85	Chop	Uzhgorod	22	36	31	2	16
86	Chop	Puchov	400	80	287	18	16
87	Puchov	Hranice	89	80	169	16	11
88	Puchov	Kyjov	155	75	118	8	15
89	Kyjov	Brno	67	67	70	3	24

* See footnote on page 84.

Table 19 (continued)

Capabilities and Requirements of Rail Systems for Warsaw Pact Reinforcement

Sector Number	Origin	Destination	Distance (km)	Capacity (trains per day)	No. of trains using sector	No. of days sector used*	Daily average (trains per day)
		East European Forward Areas					
90	Elblag	Szczecinek	235	37	48	4	12
91**	Szczecinek	Pila	71	16	100	5	20
92	Szczecinek	Lubowo	25	61	196	9	22
92a	Lubowo	Drawsko	66	61	244	11	22
93	Lubowo	Borne Solinowo	10	22	48	3	16
94	Drawsko	Szczecin	82	61	144	6	24
95	Krzyz	Szczecin	130	61	150	5	30
96**	Szczecin	Pasewalk (Jagerbruck)	38	22	344	9	30
97	Pasewalk (Jagerbruck)	Neubrandenburg	52	22	68	4	17
98	Neubrandenburg	Schwerin	158	22	48	3	16

* *See footnote on page 84.*
** *See footnote on page 87.*

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Table 19 (continued)

Capabilities and Requirements of Rail Systems for Warsaw Pact Reinforcement

Sector Number	Origin	Destination	Distance (km)	Capacity (trains per day)	No. of trains using sector	No. of days sector used*	Daily average (trains per day)
		East European Forward Areas (continued)					
99	Olsztyn	Pila	299	56	50	5	10
100	Pila	Krzyz	58	56	50	5	10
101	Pila	Poznan	96	24	100	5	20
102	Poznan	Krzyz	84	61	100	5	20
103	Rembertow (Warsaw)	Poznan	316	80	50	5	10
104	Ostrow Wielkopolski	Poznan	114	67	100	5	20
104a	Lublin	Ostrow Wielkopolski	430	51	50	5	10
105	Poznan	Wroclaw	277	44	50	5	10
106	Wroclaw	Opole	82	80	27	5	5
107	Wroclaw	Nysa	60	72	50	5	10
108	Wroclaw	Frankfurt	241	19	52	5	10
109	Frankfurt	Guben	49	80	20	4	5

* See footnote on page 84.

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Table 19 (continued)

Capabilities and Requirements of Rail Systems for Warsaw Pact Reinforcement

Sector Number	Origin	Destination	Distance (km)	Capacity (trains per day)	No. of trains using sector	No. of days sector used*	Daily average (trains per day)
		East European Forward Areas (continued)					
110	Guben	Krosno	29	19	8	4	2
111	Frankfurt	Wulheide	80	80	72	5	14
112	Wulheide	Fulkenhagen	54	80	32	5	6
113	Fulkenhagen	Wittenberge	100	20	32	5	6
114**	Zagan	Swietoszow	17	17	48	3	16
115**	Zagan	Cottbus	72	17	75	5	25
116	Cottbus	Grunau	110	20	12	5	2
117	Grunau	Wustermark	63	80	12	5	2
118	Wustermark	Wittenberge	116	26	12	5	2
119	Cottbus	Juterbog	128	30	63	3	21
120	Rzeszow	Ostrow Wielkopolski	447	61	50	4	13

* See footnote on page 84.
** See footnote on page 87.

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Table 19 (continued)

Capabilities and Requirements of Rail Systems for Warsaw Pact Reinforcement

Sector Number	Origin	Destination	Distance (km)	Capacity (trains per day)	No. of trains using sector	No. of days sector used*	Daily average (trains per day)
121	Presov	Vrutky	212	80	50	5	10
122	Vrutky	Olomouc	204	80	102	8	13
123	Olomouc	Chocen	113	80	152	8	19
124	Chocen	Pardubice	35	50	204	8	26
125	Pardubice	Hradec Kralove	55	50	50	5	10
126	Turnov	Mlada Boleslav	30	33	52	4	13
127	Mlada Boleslav	Nymburk	29	33	102	4	26
128	Nymburk	Usti Nad Labem	135	80	52	4	13
129	Usti Nad Labem	Postoloprty	70	80	52	4	13
130**	Postoloprty	Doupov	29	26	154	4	39
131	Nymburk	Prague	48	75	50	2	25

* *See footnote on page 84.*
** *See footnote on page 87.*

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Table 19 (continued)

Capabilities and Requirements of Rail Systems for Warsaw Pact Reinforcement

Sector Number	Origin	Destination	Distance (km)	Capacity (trains per day)	No. of trains using sector	No. of days sector used*	Daily average (trains per day)
132	Prague	Beroun	41	80	204	3	68
133**	Beroun	Postoloprty	102	24	102	2	51
134**	Bruntal	Olomouc	65	26	50	2	25
135	Pardubice	Prague	105	80	176	3	59
136	Beroun	Plzen	72	80	102	3	34
137**	Plzen	Doupov	84	26	102	3	34
138**	Vysoke Myto	Chocen	8	24	52	2	26
139	Zvolen	Vrutky	95	21	52	3	17
140	Topolcany	Jihlava	449	23	50	4	13

* *See footnote on page 84.*
** *See footnote on page 87.*

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Effects of Selected Collateral Constraints

Constraints imposed by an arms control agreement would in theory affect Soviet reinforcement capabilities in one of two ways: they would delay the process of reinforcement or limit its size; or, they would make the fact that reinforcement was under way more readily apparent to the West.

Hindering Reinforcement

Any arms control agreement devised to constrain Soviet capabilities for reinforcement would have to be extremely elaborate. One theoretical approach would be to limit the transport available for reinforcement, but this is not a promising avenue. Most of the required transport equipment can be used for either civilian or military purposes, and far greater quantities of this equipment than are necessary to support any conceivable reinforcement could be in reserve but operating to support the legitimate needs of the economy. Limitations on military transport alone are therefore ineffective from the US point of view, while agreeing to limits on necessary civilian transport is unthinkable from the Soviet point of view.

To constrain the Soviet reserve system effectively would, if anything, be an even more formidable task. Given the way Soviet conscription operates, its basic resource--a reserve of men with relatively recent military experience--would always be there. One would have to get deeply into Soviet administration to know for certain that the records and administrative backup for calling up personnel reserves had in fact been done away with. The same thing would have to be said about motor transport reserves. To verify that state-owned trucking enterprises had divested themselves of a potential military function would be extremely difficult.

Constraints might be applied by limiting the forces the Soviet Union could keep in its western military districts, reducing either the forces available at once or the units to be fleshed out through mobilization, and at least delaying the reinforcement cycle by imposing some extra distance upon some portion of the force. The negotiability of proposals involving force changes in the USSR as well as the forward area would be reduced drastically as Moscow's price for it ran prohibitively high.

Warning About Reinforcement

As a practical matter then, it makes more sense to devise ways of knowing quickly that mobilization and reinforcement are occurring than to attempt to deprive the Soviets of their capability to mobilize and reinforce. Measures for this purpose might operate in three ways:

-- To improve collection of information on movement into the forward area.

-- To make changes in force posture more visible. Constraints on vacated barracks would make their unauthorized reoccupation more evident as signs--such as tentage--of the presence of new units appeared. Constraints on disposition of surplus equipment removed from the forward area would impose upon the Soviets not only the burden of moving it back but the likelihood that movement of large items of equipment would be observed.

-- To impose constraints on activities which might otherwise be ambiguous. The simplest such constraint would be an agreement on advance notification of movements into the forward area or out of garrison for exercises.

Observation of such activity without prior announcement would be prima facie evidence of violation of the arms control agreement.

Adequacy of Data Base

The imposition of effective collateral constraints upon Warsaw Pact mobilization and reinforcement capabilities against the Central Region of NATO requires a precise knowledge of the size, disposition, and capabilities of Pact forces and their mobilization and reinforcement base. The information presented in this report, most closely approximates the degree of knowledge which would be required to formulate effective constraints. On the basis of these data, therefore, constraints are designed, at least in theory, to disrupt Soviet and East European capabilities to mobilize and reinforce.

Theoretical Constraints

In theory, constraints could be formulated to limit existing Soviet and Warsaw Pact forces and hinder mobilization and reinforcement. These theoretical constraints could be used to reduce the size and composition of forces in the forward area and in the western USSR; to limit the mobilization base; to restrict reserve and paramilitary training; and to restrict transportation between the western USSR and the forward area. The constraints chosen below, however, are applied against the major problem areas or points of disruption which can be discerned in the data of this study.

Major Points of Disruption

Examination of the data in this study reveals several points in the system which are, in theory, vulnerable to constraints. The points include the following:

-- The motor transport reserve units which are integral to the mobilization system in the USSR's three western military districts.

-- Tank transporter regiments which are integral to the movement of tanks over roads for long distances. Three of these units have been identified in the western military districts and an additional 3½ regiments are located in the strategic reserve of Kiyev and Moscow. Two of the reserve regiments have been allocated for use in this study.

-- Paramilitary and reserve training.

-- Major railroad transloading complexes on the Polish and Czechoslovak borders with the USSR. There are 8 of these complexes through which 22 divisions were passed in this study.

Proposed Constraints

Following is a list of the kinds of constraints which might in theory be applied against the major points of disruption noted in order to retard mobilization or forward movement from the USSR. The constraints are selected only for their potential effect without regard for their feasibility or negotiability.

-- Motor transport reserve units: Disband the system. This would probably increase the time needed for mobilization, although possibly by only a few hours.

-- Tank transporter regiments: Abolish these units and this type of equipment. The Soviets would thus lose flexibility in the transport of tanks, having to rely virtually exclusively on railroads. The capacity of their railroads, however, is sufficient to handle this increased load.

-- Paramilitary and reserve training: Abolish these systems. This would reduce the quality of the men and units to be mobilized.

-- Major railroad transloading complexes: Restrict the number of railcars permitted to use these complexes. This would reduce Soviet reinforcement capabilities.

Reduce the servicing capacity of these transloading complexes. This would reduce the number of railcars which could be handled simultaneously.

Qualitative Evaluation of Warsaw Pact Units

The foregoing evaluation of the mobilization and movement of Soviet units from the western USSR into the forward area assesses primarily the quantitative aspects of the problem. Analysis of the impact of a successful reinforcement, however, also requires assessment of the quality of the forces. This section describes and applies a method for qualitative evaluation of the mobilizing and reinforcing units, as well as those Warsaw Pact units already in place.

US Readiness Standards

Ideally, evaluation of the combat readiness of Soviet and other Warsaw Pact units would utilize the detailed, objective criteria employed to evaluate the readiness of the units of the US and its NATO allies. The US Army system, for example, seeks to ascertain "...that each unit has its authorized personnel with the required skills available for duty; that its authorized equipment is on hand and maintained in an operational condition; that its needed supplies are on hand; and that each unit is maintaining a state of training which will permit accomplishment of the mission reflected in the authorization document under which it is organized...."

[redacted] the general condition of Soviet and East European units using [redacted] data available and to classify them using US Army readiness condition *terminology*, defined as follows:

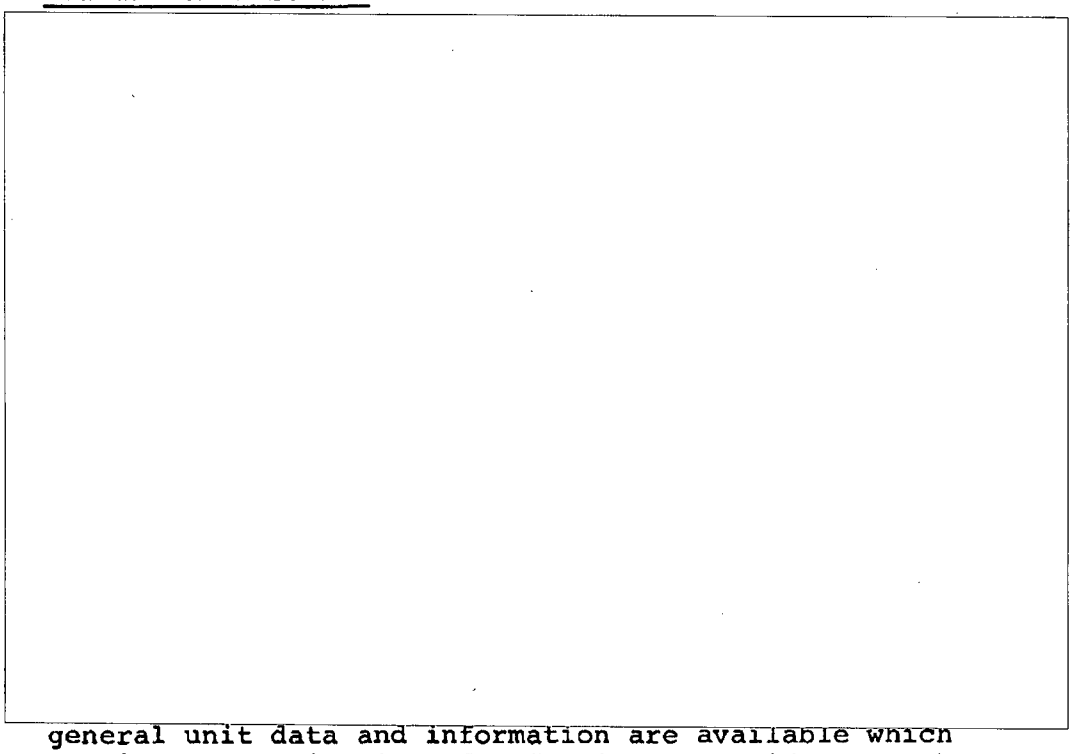
Redcon 1. Fully ready. Unit is fully capable of performing the full TOE mission for which organized or designed.

Redcon 2. Substantially ready. Unit is capable of performing the full TOE mission for which organized or designed, but has minor deficiencies which reduce its ability to conduct sustained operations.

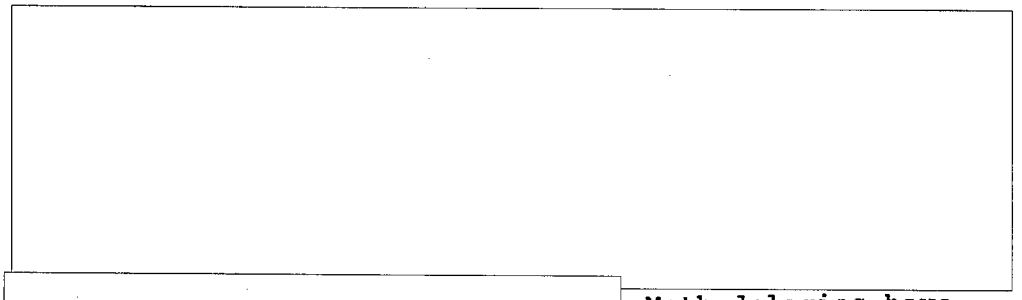
Redcon 3. Marginally ready. Unit has major deficiencies of such magnitude as to limit severely its capability to perform the full TOE mission for which organized or designed, but is capable nonetheless of conducting limited operations for a limited period.

Redcon 4. Not ready. Unit is not capable of performing the missions for which it is organized or designed.

Evaluation Criteria



general unit data and information are available which permit the application of criteria to provide a rough estimate of the qualitative state of readiness of



Methodologies have been developed which permit general estimates of the manning levels of units in the forward areas and in the western USSR. Using these estimates it is possible to assign a numerical value to units at or below the level of the agreed norm--the TOE deduced from "model" units in the GSFG. This evaluation scale for unit manning is as follows:

Manning level (percent of TO)	Readiness value
90-100	1
66	2
50	3
33 or less	4

CIA and DIA estimates differ on the manning levels of divisions and nondivisional support units in the western USSR. The above evaluation scale is applicable, however, although variations in estimates of manning levels may produce different values.

Major Equipment Levels

Counts of unit equipment levels, particularly in divisions, can be made with more confidence and precision than calculations of manning levels The evaluation scale based on these equipment counts is as follows:

Equipment level (percent of TE)	Readiness value
90-100	1
75	2
50	3
30-50	4

Note: Unit shortages are primarily in service equipment. Where shortages include both combat and service equipment, the next lower readiness level is assigned.

Training Levels

The training of Soviet units in the forward areas is subject to monitoring by various sources.

The Soviets plan to mobilize for a major contingency in the least possible time and all other considerations such as training, specialty, and age are secondary to the rapid acquisition of men. There would apparently be few cases of shortages of men who could get to mobilization points in one day in sufficient numbers to bring Soviet divisions and other units up to full strength. The proficiency of the individual reservist, however, will depend on his date of discharge and military specialty. The experience of the Motorized Rifle Regiment, 31st Tank Division, which was mobilized for the invasion of Czechoslovakia, gave evidence that the age, and therefore skills, of reservists vary.

More importantly, a unit mobilized but untrained as a unit cannot, in any event, expect to have the combat proficiency of an identical unit which has

trained as a unit for a year or more. This would be true even if the personnel of the active unit included as many as 50 percent new inductees when it began its yearly training cycle.

Since by normal military standards successful unit training is vital to the attainment of maximum combat proficiency, training has been included as a factor in the qualititative evaluation of mobilized Soviet units. The scale adopted is a modified version of the criteria used for US Reserve and National Guard units which are to be mobilized. This is not a precise evaluation, particularly since the size, state of training, or proficiency of the nucleus or cadre elements of units to be mobilized cannot be precisely determined. However, the scale given below permits a rough measurement of this factor. This scale is applied only to those mobilized units where no "hard" evidence is available on the state of training. Where evidence indicates that any unit, regardless of manning or equipment level, has conducted normal progressive unit training for at least one annual cycle, then that unit is given a training readiness value of "1" in lieu of a value from the scale.

Unit training level		Readiness value
Division or equivalent	4 weeks	1
Regiment or brigade	2 weeks	1
Battalion	4 weeks	1
Division or equivalent	3 weeks	2
Regiment or brigade	1 week	2
Battalion	3 weeks	2
Division	2 weeks	3
Battalion	2 weeks	3
All lower training levels		4

The scale above assumes that training has proceeded in progressive stages--that is, battalions

Table 20

Readiness Evaluation of Soviet Divisions
in the Western USSR
Before and After Mobilization

Tank or motorized rifle division	Redcon before mobilization	Redcon after mobilization
1st TD	4	2
1st Gds MRD	4	2
3rd TD	4	2
8th Gds TD	3	2
8th TD	4	2
10th TD	4	2
15th Gds MRD	4	3
17th MRD	4	3
22nd TD	4	2
23rd TD	3	2
24th MRD	3	2
26th Gds MRD	4	3
27th Gds TD	4	2
29th Gds TD	4	2
50th Gds MRD	4	3
66th Gds MRD	4	3
70th Gds MRD	4	3
97th Gds MRD	4	3
120th Gds MRD	1	1
128th Gds MRD	3	2
U/I TD (Dobele)	4	3
U/I TD (Sovetsk)	4	2
U/I Gds TD (Berdichev)	3	2
U/I Gds TD (Novograd Volynskiy	4	2
U/I Gds TD (Borisov)	3	2

Redcon Definitions

Redcon 1. *Fully ready. Unit is fully capable of performing the full TOE mission for which organized or designed.*

Redcon 2. *Substantially ready. Unit is capable of performing the full TOE mission for which organized or designed, but has minor deficiencies which reduce its ability to conduct sustained operations.*

Redcon 3. *Marginally ready. Unit has major deficiencies of such magnitude as to limit severely its capability to perform the full TOE mission for which organized or designed, but is capable nonetheless of conducting limited operations for a limited period.*

Redcon 4. *Not ready. Unit is not capable of performing the missions for which it is organized or designed.*

must be trained individually before the parent regiment may train as a regiment, and regiments must be trained before the full division may train as a division. It also assumes that small unit training--platoon and company level--is conducted concurrently with that of the parent battalion. A division would require ten weeks, for example, to move from an untrained status to Readiness Value 1.

A division whose component regiments have trained sufficiently to attain Readiness Value 1 but which has not trained as a division is rated at Readiness Value 2. If the division's battalions are trained to Readiness Value 1 but the regiments have not trained as regiments, then the division is to be rated at Readiness Value 3 while its regiments are individually rated at Readiness Value 2. A similar interpolation is applied at other levels, where applicable.

Determination of Unit Readiness Condition

When a Pact unit has been rated in the three basic factors--manning level, equipment level, and training level--the three values are added. The sum of these three values divided by 3 provides the Readiness Condition (Redcon) number for the unit. Should this process result in a figure between two Redcon condition numbers, for example 2.7, then the unit is rated at the next *lower* Redcon number. The definitions of readiness conditions, appended to Table 20, are those of the US Army system for rating units under the provisions of AR 220-1.

* * * * *

DIA Comment

The Defense Intelligence Agency does not believe that the foregoing section on "Qualitative Evaluation of Warsaw Pact Units" provides a valid estimate of the quality of Warsaw Pact ground forces. Although

it may not have been intended, there is an implicit qualitative comparison with US forces. The application of US criteria to Warsaw Pact ground units is inappropriate in that the organizational and employment concepts differ greatly. The qualitative comparison proposed in the section ultimately presents no more than a unit categorization or classification system based on estimated personnel and equipment holdings, with the addition of an assumed unit training factor for which available information is tenuous at best. With the available evidence, confident estimates on qualitative aspects of Warsaw Pact divisions do not lend themselves to precise definition.

DIA further believes that, although subjective treatment of qualitative evaluation would provide a more complete assessment and permit full qualification of the limitations imposed by available evidence, accurate categorization systems provide a direct qualitative indication of unit effectiveness after mobilization. In this connection, despite considerable variation, good evidence indicates Warsaw Pact divisions currently fall into three general categories consistent with the states of readiness described in Soviet military writings.

Those divisions which have from 75 to 100 percent of their equipment are essentially combat ready as they stand and are designated Category I. These divisions need not undergo extensive expansion, and are available for commitment within one day. Divisions within this category are generally kept in the highest state of readiness (see the tabulation, next page).

The second category consists of divisions containing 50 to 75 percent of their personnel and equipment. These divisions would undergo expansion of subunits through mobilization of reservists and civilian vehicles and could deploy within 3 to 5 days. These are designated Category II divisions.

The third readiness group, designated Category III, consists of divisions which are intended for

longer term mobilization. These divisions have about 20 to 35 percent of their personnel and 25 to 50 percent of their equipment (including essentially all tanks and major artillery pieces). Most elements of these divisions must undergo extensive expansion through mobilization of reservists and transport vehicles. If required, the Soviets could assemble the personnel and equipment for these forces within about a week. Under normal circumstances several

Estimated Categories of Soviet Divisions in the Three Western Military Districts of the USSR

Tank or motorized rifle division	Category
1st TD	III
1st Gds MRD	II
3rd TD	II
8th TD	II
8th Gds TD	I
10th TD	II
15th Gds MRD	II
17th MRD	III
22nd TD	II
23rd TD	I
24th MRD	I
26th Gds MRD	III
27th Gds TD	II
29th Gds TD	II
50th Gds MRD	III
66th Gds MRD	II
70th Gds MRD	II
97th Gds MRD	II
120th Gds MRD	I
128th Gds MRD	I
U/I TD (Dobele)	II
U/I TD (Sovetsk)	II
U/I Gds TD (Berdichev)	II
U/I Gds TD (Novograd Volynskiy)	II
U/I Gds TD (Borisov)	I

weeks would be required for these divisions to process designated reservists and equipment into effective subunits. However, should national priorities dictate immediate deployment, some of the Category III divisions could be moved in about one week from the start of full mobilization. This would certainly be done, however, with the realization of a considerably reduced capability or combat effectiveness compared to Category I or II units.

* * * * *

Department of State Comment

The Team member from the Department of State does not subscribe to the foregoing section on "Qualitative Evaluation of Warsaw Pact Units."

He agrees, of course, that such factors as the lack of unit training for regiments with large numbers of recently recalled reservists and paucity of support would cut into Soviet combat capabilities.

Nevertheless, he finds the section defective in that it implies a comparison with US Army Redcon grades which admittedly cannot be made. The discussion is of a grading of Soviet divisions--necessarily based upon grosser factors than those used for US divisions--against estimated Soviet missions, and ultimately there is no way to equate 1 to 4 grades for Soviet divisions with the 1 to 4 grades for US divisions.

APPENDIX

Differences in CIA and DIA Estimates

Separate analyses by CIA and DIA have resulted in disagreement concerning the current status of Soviet ground forces. Since the differences in the CIA and DIA estimates do not significantly affect either the calculation of strategic movement data or the judgments on mobilization time, DIA figures have been used in all detailed movement calculations. There is no CIA/DIA disagreement about the findings on availability of units for movement, or the estimated arrival times of forces in the forward area.

Specific CIA/DIA disagreements on forces are discussed below. The separate force estimates are presented in the tables on pages 114 and 115. Detailed listings are in the Annex.

Soviet Divisions

CIA believes that most of the 25 Soviet divisions which would form the Belorussian and Carpathian fronts are manned and equipped at lower levels than are indicated by the DIA estimate. CIA believes that this greater shortage indicates a requirement for the mobilization of at least 20 percent more reservists and 15 percent more civilian vehicles than in the DIA estimate. CIA believes that, after mobilization, 19 of these 25 divisions would have between 50 and 80 percent reservists, that 5 other divisions would have around 35 percent reservists and only one would probably require none.

CIA believes that some ten weeks of intensive unit training would be required to give the 19 divisions effectiveness levels approaching those of divisions which are combat ready now. DIA believes additional training would improve the combat effectiveness of all units being mobilized. However, no one estimate can be made for all units because these units vary widely in their degrees of readiness.

Table 21

CIA Estimate of Force Levels in Reinforcing Military Districts of the USSR

	Personnel			Equipment Items		
	TOE	Estimated	Shortage	TOE	Estimated	Shortage
Belorussian MD						
Front*	40,300	14,500	25,800	5,800	3,300	2,500
Armies** (3)	37,800	18,800	19,000	18,900	6,500	12,400
Tank Divs (8)	68,300	37,000	31,300	18,400	10,400	8,000
MRDs (2)	20,800	11,200	9,600	4,800	3,200	1,600
Total Belorussian MD	167,200	81,500	85,700	47,900	23,400	24,500
Baltic MD						
Army**	12,400	5,900	6,500	4,600	1,800	2,800
Tank Divs (3)	25,600	10,700	14,900	6,900	3,100	3,800
MRDs (2)	20,800	7,800	13,000	4,800	2,400	2,400
Total Baltic MD	58,800	24,400	34,400	16,300	7,300	9,000
Carpathian MD						
Front*	40,500	14,800	25,700	9,800	3,300	6,500
Armies** (3)	38,200	20,000	18,200	14,500	6,300	8,200
Tank Divs (3)	25,600	15,600	10,000	6,900	4,600	2,300
MRDs (7)	72,700	25,800	46,900	16,800	9,200	7,600
Total Carpathian MD	177,000	76,200	100,800	48,000	23,400	24,600
TOTAL	403,000	182,100	220,900	112,200	54,100	58,100

Note: Data are rounded to the nearest hundred.
* *Includes nondivisional and nonArmy support and service units.*
** *Includes nondivisional support and service units.*

Table 22

DIA Estimate of Force Levels in Reinforcing Military Districts of the USSR

	Personnel			Equipment Items		
	TOE	Estimated	Shortage	TOE	Estimated	Shortage
Belorussian MD						
Front*	47,700	14,600	33,100	13,000	4,100	8,900
Armies** (3)	43,800	30,000	13,800	16,500	11,400	5,100
Tank Divs (8)	68,200	45,200	23,000	18,400	12,200	6,200
MRDs (2)	20,800	12,200	8,600	4,800	3,400	1,400
Total Belorussian MD	180,500	102,000	78,500	52,700	31,200	21,600
Baltic MD						
Army**	14,600	9,900	4,700	5,400	3,800	1,600
Tank Divs (3)	25,600	13,100	12,500	6,900	4,600	2,300
MRDs (2)	20,800	9,300	11,500	4,800	3,400	1,400
Total Baltic MD	61,000	32,300	28,700	17,100	11,800	5,300
Carpathian MD						
Front*	47,700	14,600	33,100	13,000	4,100	8,900
Armies** (3)	43,500	29,400	14,100	16,500	10,700	5,800
Tank Divs (3)	25,600	17,200	8,400	6,900	5,000	1,900
MRDs (7)	72,700	44,400	28,300	16,800	10,100	6,700
Total Carpathian MD	189,500	105,600	83,900	53,200	29,900	23,300
TOTAL	431,000	239,900	191,100	123,000	72,800	50,200

Note: Data are rounded to the nearest hundred.
* *Includes nondivisional and nonArmy support and service units.*
** *Includes nondivisional support and service units.*

The following tabulations summarize two major areas where CIA and DIA figures disagree--current manpower and equipment holdings of tank divisions (TDs) and motorized rifle divisions (MRDs) in the reinforcing fronts:

	TDs	MRDs	Total
Personnel			
DIA	75,500	65,900	141,400
CIA	63,300	44,800	108,100
Equipment items			
DIA	21,800	16,900	38,700
CIA	18,000	14,800	32,800

Polish Divisions

CIA estimates that a combat ready Polish mechanized division has about 9,000 men and 1,700 major equipment items and that a combat ready Polish tank division has about 6,500 men and 1,500 major equipment items. CIA estimates that 5 Polish mechanized and tank divisions currently approximate these levels and are combat ready, that each of 3 divisions would require mobilization of 2,000 to 3,000 reservists and up to 200 civilian trucks, and that 5 cadre divisions would each require between 3,500 and 7,000 reservists and 500 to 900 civilian vehicles.

DIA believes that the authorized war strength of Polish mechanized divisions is about 10,000 men and 2,200 vehicles and, of tank divisions, about 8,000 men and 2,000 vehicles. DIA estimates that 8 Polish tank and mechanized divisions are combat ready now although lacking up to 2,000 men and 300 vehicles each, that 3 mechanized divisions would require mobilization of about 5,000 men and from 450 to 900 vehicles each, and that 2 others would require about 7,000 men and 900 vehicles each.

CIA and DIA agree that all except the cadre divisions could be filled out and made available in one day. Three of the cadre divisions could be available within 3 days but would have low initial effectiveness because of the large numbers of reservists and also because of serious equipment deficiencies such as older tanks and a lack of armored personnel carriers. The other 2 cadre divisions would be so deficient as to have only marginal defensive capabilities and probably would be unfit initially for offensive missions.

Availability of Support Units

The number of nondivisional units which would be required to bring the front and army level support of the Belorussian and Carpathian fronts to the GSFG level has not been identified.

For purposes of the reinforcement study, allowance was made for the mobilization of two fronts from the three military districts involved. To form a prototype front required a number of support units which have not been identified. These were assumed to exist in the military districts concerned and allowance for their movement was computed. It is possible the two fronts would be constituted with deficiencies in support units.

CIA believes that if a significant number of these missing units actually existed they would have been identified

Therefore, CIA believes that most of these units will not be available to the two fronts after mobilization and movement forward. DIA has less confidence in the completeness of satellite photographic coverage.

Significance of CIA/DIA Differences

The CIA/DIA differences are important chiefly as they affect views of the quality and initial combat effectiveness which the forces would attain after mobilization. They would be more important in nonnuclear

war than in nuclear war since the kinds of units which are more severely affected--artillery, infantry, engineer and service support units--would be most essential for sustained nonnuclear war. Missile, tactical air, and tank units--the ones with critical nuclear war roles--probably are less affected by peacetime reduction in manpower and equipment.

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